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FOR QUARTER CENTURY THE BRICKBUILDER

APRIL 1917

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VOLUME XXVI NUMBER 4

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RUINS OF THE CHURCH OF ST. NICOLAS, DIXMUDE, BELGIUM

AFTER AN ETCHING BY GEORGE T. PLOWMAN

Dixmude is a small Belgian town on the Yser, not far from the French border. St. Nicolas, the principal church, contained a number of valuable works of art, including a famous rood-screen, of which practically nothing now remains.

THE ARCHITECTURAL FORUM

FOR QUARTER CENTURY THE BRICKBUILDER

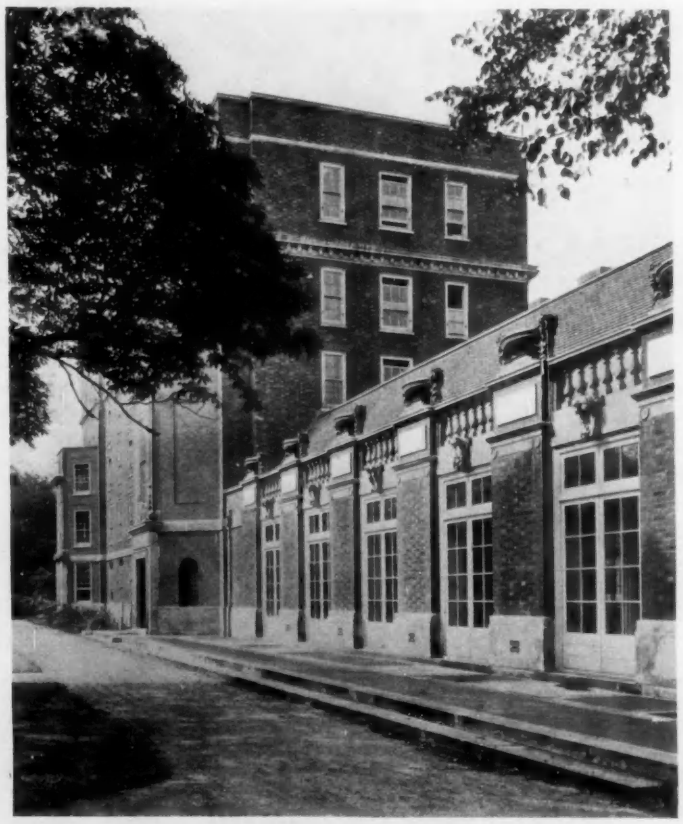
VOLUME XXVI APRIL 1917 NUMBER 4

A New Type of College for Women

H. PERCY ADAMS & CHARLES HOLDEN, ARCHITECTS

By R. RANDAL PHILLIPS

As with medical science and hospital practice, so our educational systems are constantly in a state of change, ever advancing to accord with fresh thought, new methods of teaching, and new requirements. Elementary class rooms, for example, have undergone radical alteration within the past twenty-five years, tending now to be very much smaller than they used to be, with a correspondingly smaller number of pupils, who are thus able to receive more individual attention. With secondary education there have been drastic changes, and the future will witness a tremendous development in this branch of training, in view of the fact that national progress today is based essentially on technical efficiency. But nothing perhaps in our newer methods of education has been so striking as the facilities provided for the training of women. We are now familiar with the ordinary schools for women, but these by no means fulfil all the requirements, for women are taking a place of ever increasing importance in the work-a-day world, and there is consequently a demand for the provision of all manner of new educational facilities to meet the growing scope of their activities. In England the very latest expression of this new phase of development is seen in the extensive college for women which has been built by King's College — a branch of the University of London — on a site at Campden Hill, Kensington, facing on Campden Hill Road.

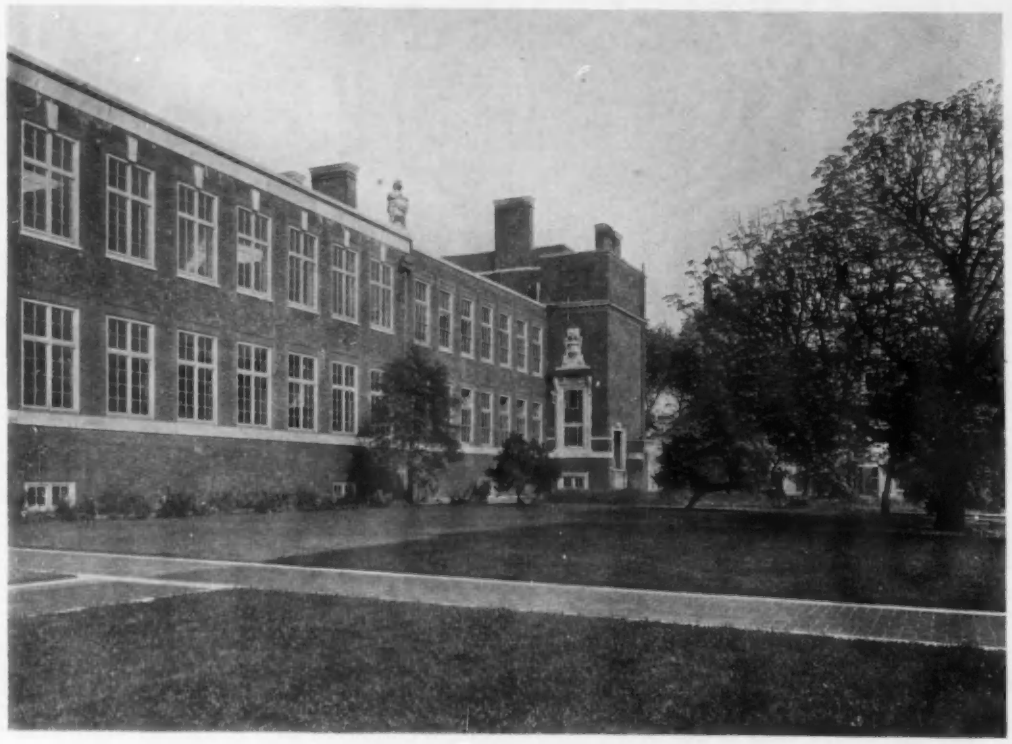


Entrance Front, King's College for Women, Campden Hill, London

Before proceeding to describe the buildings, it may be explained that the lectures given in this college are expressly adapted to the needs of women wishing to prepare themselves for the efficient management of their own homes, and for stimulating that interest which knowledge and thought can develop in those subjects with which all women are more or less concerned. The training also fits them for posts as teachers, and for other spheres both professional and voluntary, including work on district councils and other public bodies, and especially for housekeeping on a large scale. There are also many openings connected with the interests of public health, the demand for trained social workers in connection with which is constantly increasing.

The grouping of studies within the courses now includes (three years' course) biology, chemistry, physics, and housewifery; economics (including a short course in bookkeeping and business affairs), ethics, and psychology. Thus it will be seen that this is an endeavor to treat all subjects connected with the household both scientifically and practically, and in every case to link up the practical arts with the scientific principles on which they are based.

This movement is thoroughly in accord with what may be called the ethics of knowledge in our own day — with the realization of our responsibility in applying knowledge, wherever possible, to practice. The application of science to household matters is only the natural outcome of an appreciation of the benefits which have accrued in all other departments of life where science has been intro-



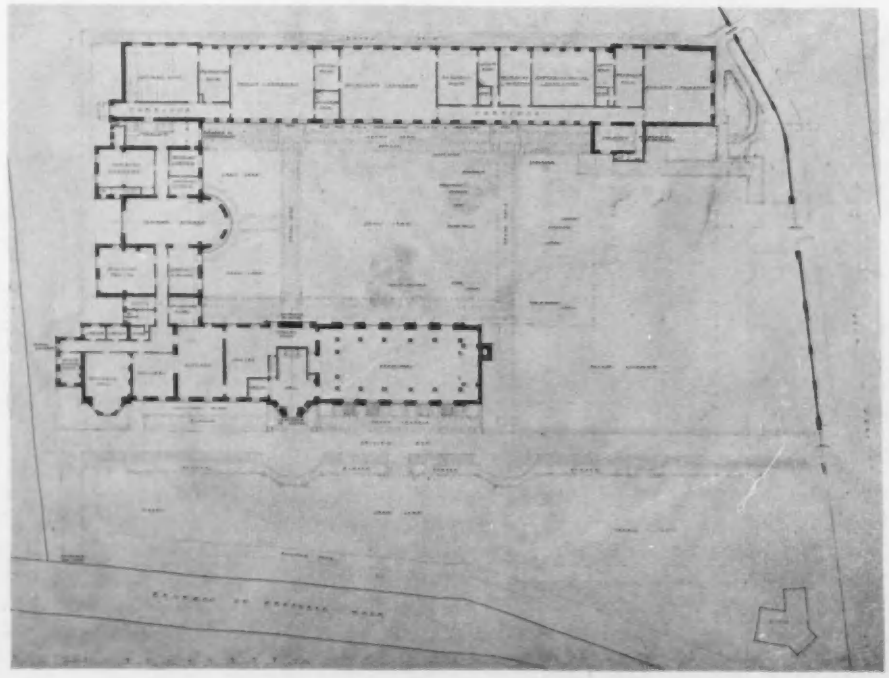
View of Laboratory Buildings from the Quadrangle

duced; and the introduction of a domestic science course into a University, though regarded by some as a revolutionary step, is no more so than was the inclusion of agricultural and engineering courses in the curriculum for men — an innovation that has already justified itself.

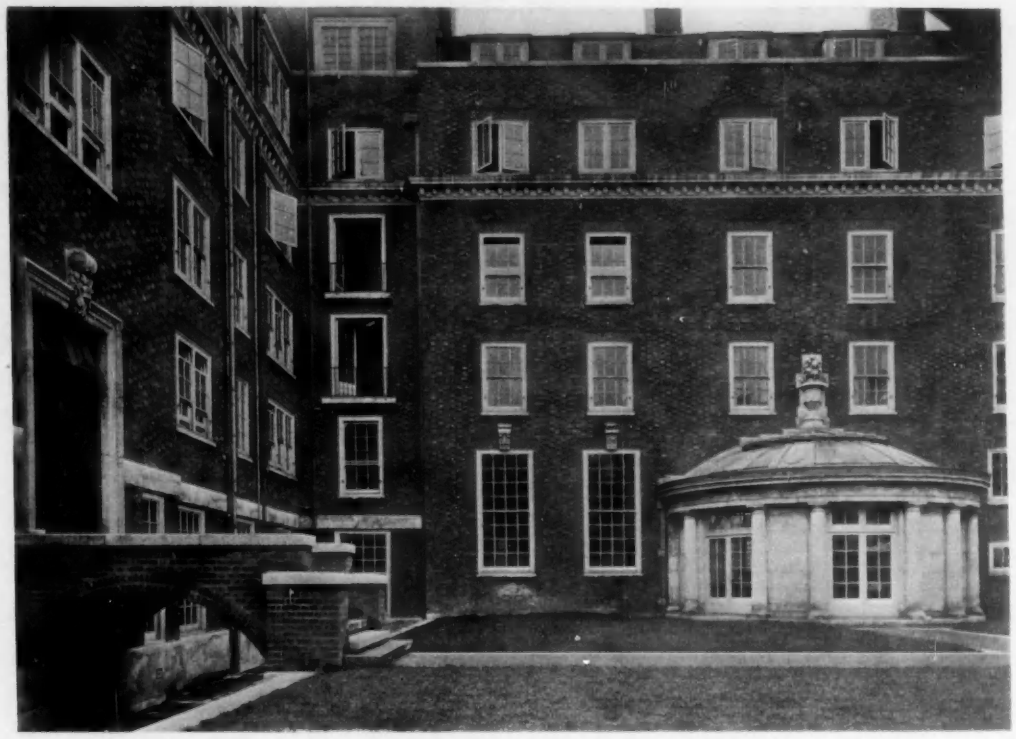
The organization of these courses is the outcome of a strong wave of public opinion which has recently become aware of the danger arising from the prevalent ignorance of such matters as economic household management, hygiene, and child-rearing; and it may be regarded as the special contribution made by women in recognition of the necessity for specialization in order to attain a high standard of national efficiency. Valuable work has already been done in this direction by the opening of domestic training schools and polytechnics throughout the country, and the introduction of a domestic science course into a University is, as it were, the crowning of the edifice which is being built up. It will ensure these subjects taking their proper place in public estimation, and will, it is hoped, lead to the elucidation of many of the complex problems continually confronting the household managers of the present time.

From the foregoing it will be realized that the scheme of this new college is of great interest from an educational point of view, and no less interesting is the architectural treatment of the buildings. These ultimately will form a complete quadrangle, but, as will be seen from the accompanying plan, the front block, comprising the administration offices, the college library, and various class rooms, has not yet been erected.

The college is entered from Campden Hill Road, where stand two finely wrought gates in iron, flanked by brick piers, those of the main entrance gate being crowned by carved stone urns. Entering by the lower gate, we pass along a carriageway to the entrance to the hostel, or residential portion of the institution. This block, like the rest of the college, is a straightforward piece of brickwork, carried out in bricks of excellent texture and color, with just enough stone dressings and carved enrichments



General First Floor Plan



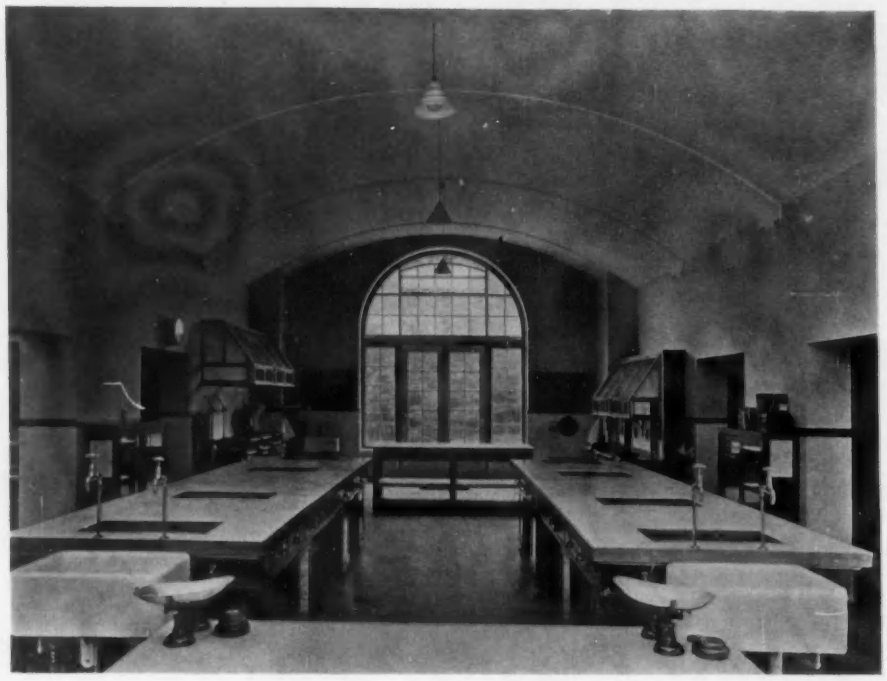
View in Quadrangle toward Teaching Kitchen

to enliven the whole and avoid all appearance of barrenness. The main entrance leads into a hall lined with Hopton Wood stone. To the right is the refectory, where the architects, Messrs. H. Percy Adams and Charles Holden, have had their chief opportunity for interior design, and have achieved an extremely pleasant result. The refectory is a room measuring about 76 by 35 feet, covered by a segmental barrel vault (in reinforced concrete) and lighted by French windows and by clerestory windows. A range of columns extends down each side, and at one end is a slightly raised platform for the high table. The architectural treatment of this interior displays a marked sense of refinement. The plasterwork on the ceiling, for example, is in just sufficiently high relief to emphasize the lines of the construction, while not being too insistent and heavy, as much decorative plasterwork unfortunately is; the mouldings are correspondingly delicate, and the electroliers graceful in character. The room is finished throughout in white.

To the left of the entrance hall are the kitchen offices, and beyond these, on the west side of the quadrangle, a series of rooms which are quite unique. They comprise a large teaching kitchen in the center, with a teaching pantry, a teaching scullery, a teaching larder, and a teaching laundry in conjunction. These rooms are equipped with every kind of apparatus and fitting for cooking and other domestic work, and practical instruction and demonstration are given in them. The kitchen, for instance, has different types of stoves for cooking by gas, coal, and electricity; there are meters with glass fronts through which the working of the apparatus may be studied; there are two long benches with tiled tops and with sheet-iron recesses covered by grids in which gas burners are fitted, and other apparatus appurtenant to modern methods of cooking. The equipment (at first sight rather luxurious) is all calculated to familiarize the student with different types of fuel, and to show how care in the arrangement of a kitchen may minimize work and promote efficiency. In every way provision is made

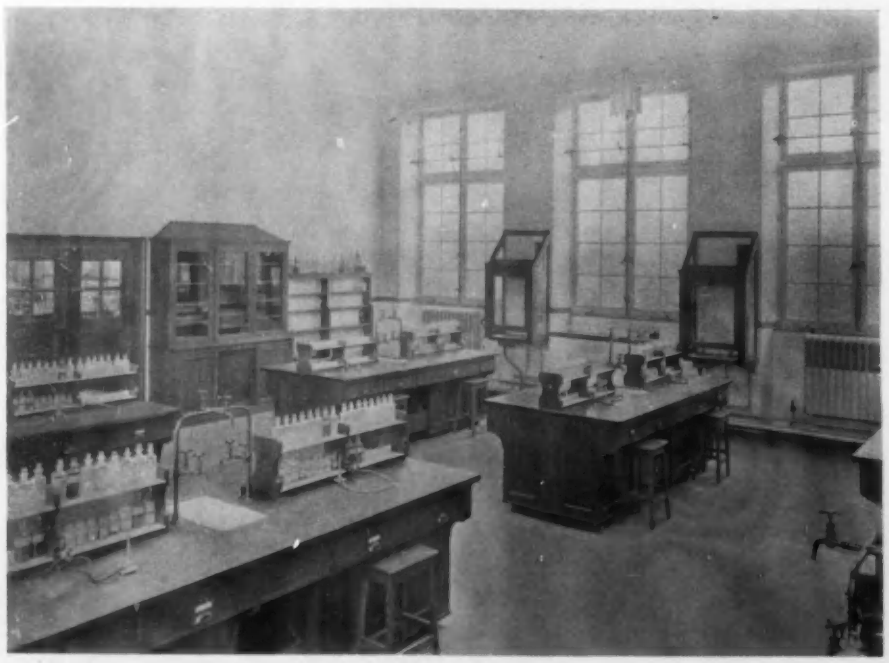
Interior View of Refectory

for individuality and resourcefulness to be developed, and there is no risk of students going away dependent on any one particular type of equipment: they have full opportunity to become practical housewives, with a reason "for the faith that is in them." In the teaching scullery one finds a similar complete equipment, while in the teaching laundry are appliances for ironing by gas and electricity, washing machines, mangles, etc. The floors of all these rooms, like the working kitchen offices themselves, are laid with red quarries, the walls having a dado of white tiles, finished above with white distemper. Everything is of excellent quality and finish. The rooms, moreover, are very spacious and well lighted.



Interior of Teaching Kitchen

The hostel proper is installed in the south and west blocks. There are fifty-seven bed-sitting-rooms, to each of which a dressing-room is attached, the remainder of the hostel being occupied by the common-rooms, isolation-rooms, and administration offices. The common-room on the first floor is an extremely comfortable apartment, furnished in good taste, and having a fine marble mantelpiece as a focus of interest, and in connection with it we may note an application of craftsmanship which is immediately pleasing — the cast-lead grilles covering the radiators, which are set in recesses. The treatment is inspired from Adam models.



Interior View of Chemical Laboratory

The laboratory block is on the north side of the quadrangle. On the ground floor are four large laboratories for physics, physiology, bacteriology, and hygiene, respectively, and in connection with them a lecture-room, a research-room, preparation rooms, and lecturers' rooms; the first floor is mostly occupied by chemistry laboratories, with various rooms in connection with them. These laboratories, in their equipment and finish, show the same sound construction and careful attention to detail which is noticeable throughout the building. The fittings — benches, fume cupboards, etc. — are of oak, the bench tops being of teak, and the floors laid with wood blocks.

In general architectural character the exterior design of the college is an individual treatment of the later Renaissance; the refectory, for example, and the main entrance to the hostel recall Wren's work at Hampton Court; but the whole has been given the touch of a modern artist, and the buildings thereby gain the interest that attaches to all personal work. The retention of some fine old trees, and the laying out of the quadrangle with grass lawns crossed by brick paths, serve to relieve the purely architectural effect, and when in course of years the buildings have become mellowed by exposure, the quadrangle will present a very delightful appearance.

Tympanum, Royal Theatre, Toronto, Canada. Thomas W. Lamb, Architect

Modern Decorative Plaster Work*

By HARBOROUGH DESMOND UPTON

IN studying the field of modern plaster work, we must remember we are considering a material that can be put to almost any decorative use that the designer may require, and that because of there being practically no mechanical limitations to the casting of plaster, and of the readiness with which the material lends itself to nearly every form and treatment the mind can fancy, it has been extensively employed in a commercial age to imitate other and more expensive materials.

This adaptability is one of the greatest pitfalls in the use of plaster to-day — one of *les défauts de ses qualités*, as the French aptly express it — and it has possibly led to more architectural crimes than any other sham of modern days. If the designer must, for reasons of cost imposed by the owner, use plaster to imitate something else, he should keep clearly in mind the limitations or the characteristics of the material to be imitated. It is the disregard of this fundamental principle that is responsible for the shock we often have in entering a modern building; for in many cases, far too often to do credit to our artistic sense, the qualities and limitations of the material imitated are lost sight of, or frankly ignored in the design and handling of the imitation. The ornament is overdone, is too delicate or too complicated, the natural variations of texture and color are ignored or abandoned lest they be too pronounced in the effect, and we have in consequence an incongruous and false result in which the damning word "fake" shrieks at us with an insistence that cannot be downed, causing us to turn away with the feeling that the whole effect is cheap and tawdry.

On the other hand, there are many examples of modern imitation work which are so true to the characteristics of the material imitated that they do not offend the æsthetic sense at all, but if anything rather excite admiration for the study and skill that have produced such clever results. Most of our leading ornamental plasterers have display rooms showing the results of the combined study of their artisans and the architects under whose direction the work was produced. These "museums" are well worth visiting, and the plasterers are usually willing and glad to give the architect all the details of process by which the work was produced. Such a study would soon bear fruit, for the cost of production is not always responsible for poor results — it is usually poor taste or the lack of training on the part of the designer that is really to blame.

One particularly clever modern product is the "intarsia" work which has just been developed by a prominent ornamental plasterer. It is an adaptation of inlay work in Portland cement or in "Caen stone" plaster, except that the process of marquetry is reversed. The design is first cast like printer's type, about three-eighths of an inch high above a background which is later filled in, level with the design, with a cement or plaster of a different color, after which the entire surface is rubbed smooth to restore to the design any sharpness it may have lost. The result is similar to sgraffito in effect and has a permanent quality which sgraffito lacks. This work lends itself splendidly to panels, friezes, diaper wall treatment, or spandrel and tympanum designs. The example shown here is a tympanum for the Royal Theatre of Toronto, Canada, and is cast in three colors of Portland cement.

These careful imitations, true to the qualities of the material portrayed, would seem to justify the practice of sham which has come to play so important a part in the

* Articles on Ancient and Renaissance Plaster Work, by Prof. A. D. F. Hamlin, appeared in THE BRICKBUILDER for October and November, 1916.

scheme of modern interior decoration, and we may argue, too, that modern conditions and requirements justify the deception thus practised; but the question presents itself to the honest mind: Why not abandon this pretense and use plaster *as plaster* and not *imitation something else?* Let us show by a truthful treatment of the material that plaster decoration properly designed and well executed is much more effective and pleasing than "near-marble" or imitation woodwork, which sooner or later will need renovating and will surely descend still further in the scale through an attempt to restore the first illusion by means of a coat of paint!

To turn our attention to *bona fide* plaster work which is not an imitation of something else, we find that due to the improvements in modern methods of manufacture and the higher quality of the materials employed there are scarcely any effects of texture, color, or ornamental treatment known to former centuries which cannot be attained or in many cases bettered to-day.

Stair Hall, Colony Club, New York City
Delano & Aldrich, Architects

Detail in Ball Room, Colony Club, New York City
Delano & Aldrich, Architects

Let us consider briefly a few of the essential principles to be kept in mind as a safeguard against some common mistakes found in current work. First and foremost is the question of scale. Then come style, ornamental extravagance (unless required by the character of the building or room), color scheme, treatment of surfaces or "texture," undercutting, and last, but not least, consideration of perspective and the foreshortening or distorting of the design caused by it. These may not be enumerated in absolute order of their importance, but let us consider them as we have cited them.

SCALE. Plaster being essentially a perishable material, it is only correctly used for interior work. All interior decoration, no matter how big the building or room in which it occurs, should be scaled down to a finer and smaller basis than exterior work. We have examples, it is true, by architects such as Michelangelo where the interior scale is a direct violation of this law,

Main Dining Room, Ritz-Carlton Hotel, New York City
Warren & Wetmore, Architects

but we feel a sense of being crushed by its size. Don't let us err, however, by becoming too "finicky," and get out of scale by using a furniture standard, unless the ornament is not higher above the eye than furniture height, and has enough contrast with the general scale of the ornamental work to take on its proper value as intentional "small scale."

STYLE. There is a great tendency to mix styles in interior work — why, it is hard to say, except that possibly the designer takes this problem less seriously than his exterior "architecture." A clearly intentional false note is often used to accentuate the otherwise purity of the style, and this, done with caution, may possibly be commended as good practice.

ORNAMENTAL EXTRAVAGANCE. This borders so closely on vulgarity of design that it hardly seems justifiable even for a *salle de danse*, a theater, or any other place the keynote of which is gayety. Here again we must beware of going to the other extreme and having a cold restraint which may border on bareness, but in general overornamentation is usually a cloak to cover up poor design.

COLOR. Polychrome decoration of plaster work is perhaps the most difficult problem the designer has to face. We have two distinct factors to consider: what colors to use and where to use them. The first of these is far too complex a subject to treat more than elementally in this article and it will suffice to say that in general the fewer colors used the better, and crude or inharmonious colors should be avoided absolutely. As to where the color should be used: it should serve only as a background for the ornament unless the designer is striving for a purely painted effect, in which case his ornament or design should be painted on flat surfaces and does not come under the head of ornamental plaster work. Gilt has its proper use where an effect of gayety or richness is desired, but care must be taken not to use so much that it kills the modeled ornament. Gilt as a background to a frieze or to emphasize mouldings and ribs, to bring out the motifs of the design, or to give strength to the projection of leaf ornament, if well done and *not overdone*, will enhance the value of the design. Too much gilt, like too much ornament, tends toward vulgarity of effect and should be avoided.

TEXTURE. This can be overdone only too easily, but by carefully combining different textures so that one gives value to the other monotony of surface can often be changed to a charmingly successful result. There are many little tricks that are used in connection with texture treatment. The designer must be careful to avoid too

Detail in New General Post Office, New York City
McKim, Mead & White, Architects

violent contrasts and also too abrupt changes in texture. For example, a perfectly smooth surface with patches of rough finish would be absurd, and a spot of ornament in the middle of a smooth wall or ceiling would appear stranded. Let us, however, give a hammered or stippled treatment to the smooth surface immediately adjacent to the ornament, which gradually dies out into the smooth field, and the ornament is no longer a spot, but an integral part of the whole scheme of decoration.

Another maxim to remember in connection with texture treatment is that too much of even a good thing becomes monotonous, and the designer must be careful also not to fall into the error of making his surfaces so rough that all sense of refinement is lost in the result.

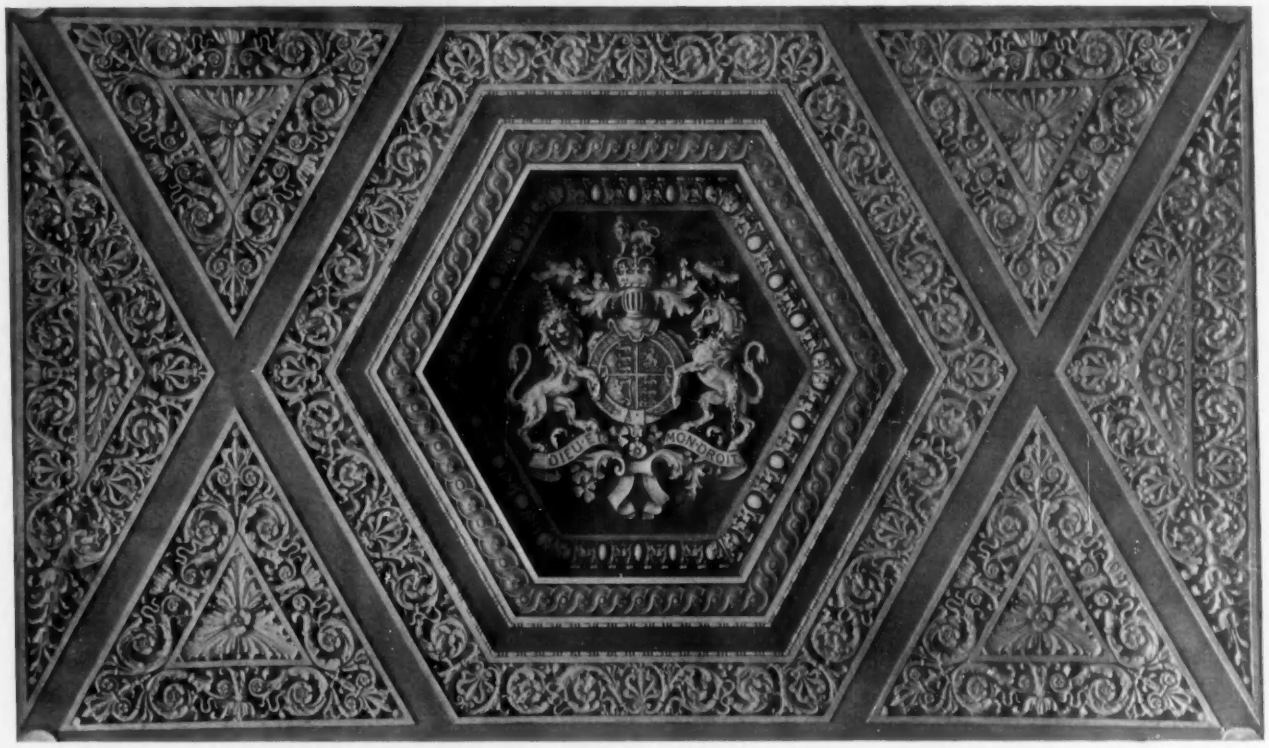
One other rule that may be followed with safety is that sharp, clear cut ornament requires a smooth treatment of the plain surfaces surrounding or framing it, and that rough backgrounds are usually only pleasing in connection with ornament of a rather rounded and primitive character, such as is found in Early English work.

Undercutting of Ornament. In this as in everything else moderation should be the keynote, especially if the question of cost is to be at all considered. In ceilings, particularly, it is bad from the point of design, for too much undercutting gives an unpleasant feeling of insecurity to the observer. Undercutting should be used to keep the design from being monotonous and to give it character. A shadow from undercut work here and there gives accent to the design and relieves the flatness so often resulting from diffused or insufficient light.

Perspective and Distortion. Often an architect discovers too late that he has not considered the distortion due to perspective in making his design. Mouldings or ornament intended to count vitally in the design are perhaps suffocated and hidden from view by other and really secondary motifs when the work is in place. There is really little excuse for this if the models are carefully studied and viewed from all possible angles. Proportions of surfaces and mouldings and lines of curves should be carefully studied in the clay if possible; or, if this cannot be done, the designer must bear in mind the possible distortion through perspective in making his drawings for the ornament to be used.

These elemental principles just stated are undoubtedly familiar friends to many readers, but they may serve as a guide to some who have not had occasion to study this subject, in which case they will have justified the space

Public Corridor, New General Post Office, New York City
McKim, Mead & White, Architects



Detail of Ceiling in Public Corridor, New General Post Office, New York City
McKim, Mead & White, Architects

taken up by this brief treatise on the theory of plaster decoration and the precautions to be observed in its use.

Fortunately the trend of modern designers, and also of a large percentage of the laymen, is toward simplicity of decoration. We have passed through many stages of cumbersome and unnecessary ornamentation, much of it so unpleasing to the eye that we wonder how any one could have perpetrated such ugliness. The element of cost for labor and material may have had some influence in this change to simpler design, especially in domestic work; but it would seem from a general analysis of modern decorative work in all branches of the arts or crafts that it is really an evolution of taste. Who of us does not prefer to live in a room that boasts of only a simple ceiling cove, with a delicate and well proportioned moulding where the cove dies into the ceiling, and an unobtrusive white picture moulding at the spring of the cove, than to have to gaze at one of those cumbersome and unlovely series of mouldings that were the pride of some twenty or thirty years ago? We even feel perfectly satisfied with the bare right angled intersection of walls and ceiling relieved only by a picture moulding, and we no longer feel the necessity of painting the cornice mouldings, if any are used, in the tawdry shades that were once considered perfectly good taste.

In architectural interiors also it would seem that the value of simplicity combined with well studied proportion is being more and more realized and appreciated by all classes. Our modern theaters, for example, are in many instances almost bare compared with the overdone and overloaded efforts of twenty years ago. Yet how much more pleasing the result and how much greater value is given to the decorative and scenic effect of the stage and the actors. We have begun to realize that everything we do should have its proper value and relation to the entire scheme. Just because we have a large wall surface does not mean that we must cover it with meaningless and useless decoration. How much more restful and pleasing is the effect of well proportioned paneling with simple mouldings than the elaborate festoons of architectural "garbage" that formerly were considered a necessary part of interior decoration.

Of course, all this does not mean that rich friezes and ceilings or decorative panels are to be eliminated. The point so well illustrated in our best modern work is that the most telling results are attained in emphasizing the richness of the ornamental work through having enough plain surfaces to give the ornament a chance to be seen and appreciated.

Our modern hotels are more and more demonstrating the fact that over-ornamentation is neither required nor desired by the majority of patrons, who, as a well known architect of to-day once remarked, prefer to pay for the food and the service rather than to pay for the chandeliers. It is true that this present age requires luxury, but not a senseless and meaningless ornamental extravagance which merely produces a confused and *nouveau riche* effect.

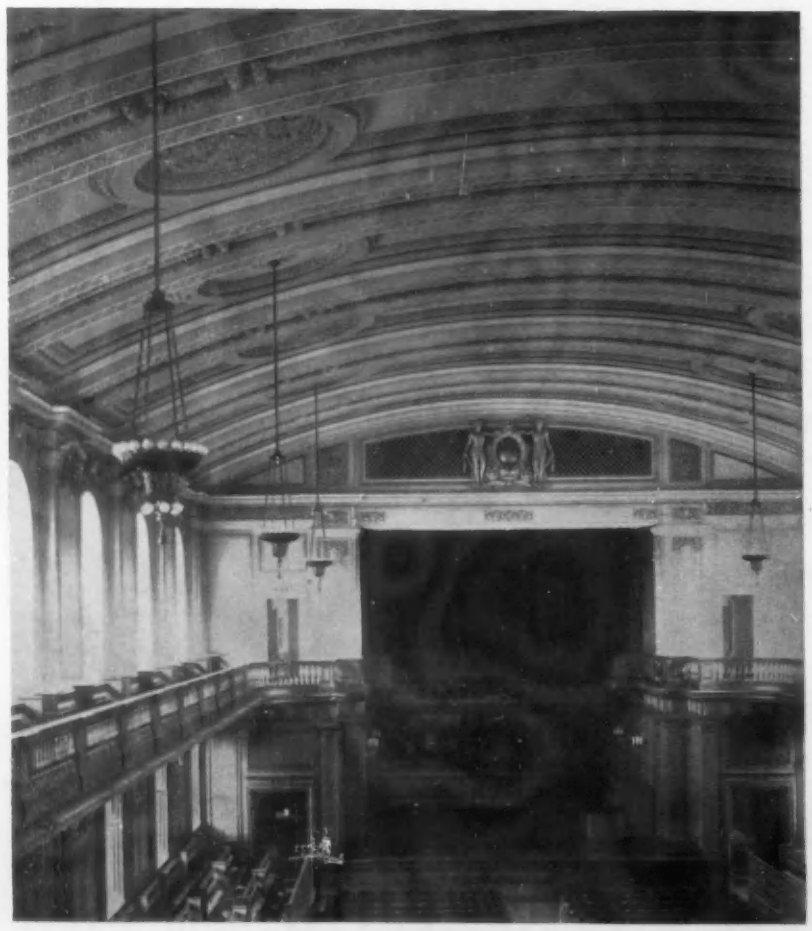
Excellent examples of modern decorative plaster work illustrative of the points we have just been considering are to be found throughout this country, and they embrace every style from ancient Greek to our own Colonial. *Art nouveau* has fortunately not been very popular in the United States. France tried it and soon discarded it as too bizarre except for jewelry or *objets d'art*. Italy evidently tired of it after the International Exposition of 1902 at Turin, which was a riot in animal, vegetable, and grotesque

forms. Germany seems to be the only country where this unlovely architectural disease has gained a firm grip on current practice.

In each of the recognized styles or periods represented in modern work in America the examples vary from close copies of existing ancient buildings, or parts of buildings, here or abroad, to the use of historic elements of decoration to carry out the architect's own composition. This latter procedure is more acceptable to the trained eye, and furthermore the work receives the stamp of the architect's individuality and is free from the stigma of plagiarism. Archæology has its proper place as a study, but not as a part of the practice of architecture.

Accompanying this article are several illustrations of the recent work of some of the best known architects of to-day. In a large part of it may be seen the influence of the Adam period. The recent popularity of this style is due largely to the carefully studied interior decoration of the Ritz-Carlton Hotel in New York City. Actual examples of the Adam Brothers' work were studied in London before any drawings were made, in order to carry out the true spirit of the style, a practice adopted

Foyer, Grace Chapin Hall, Williamstown, Mass.
Cram & Ferguson, Architects



Grace Chapin Hall, Williamstown, Mass.
Cram & Ferguson, Architects

by many leading architects when the building appropriation permits, and in consequence of this care the Ritz-Carlton may be taken as a criterion for Adam design in this country. It illustrates in addition the acme of refinement and delicacy in ornamental plaster work.

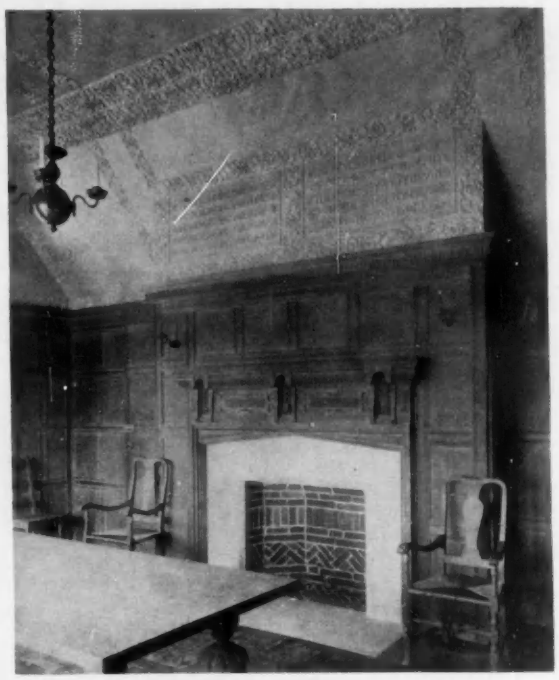
One architect who has specialized in Gothic and Early English styles has produced many charming examples of ornamental plaster design where well balanced ornament and splendid texture values are particularly demonstrated. We refer the reader to the interior views from the First Baptist Church, Pittsburgh; St. Thomas' Church, New York; and the architect's own office, also in New York.

The new Post Office Building in New York has some splendid Italian Renaissance ceilings, carefully studied and beautifully executed, all good examples of modern plaster work in this style. It will be noted that the ceilings in this building are in each case the one rich feature of the rooms in which they occur, and that the rest of the ornamental treatment is purposely simple in order not to kill the value of the ceiling decoration, and that the panels of ornament are also separated by plain, flat bands that give added value to the richness and beauty of the ornament.

The new Colony Club in New York has some excellent interiors that

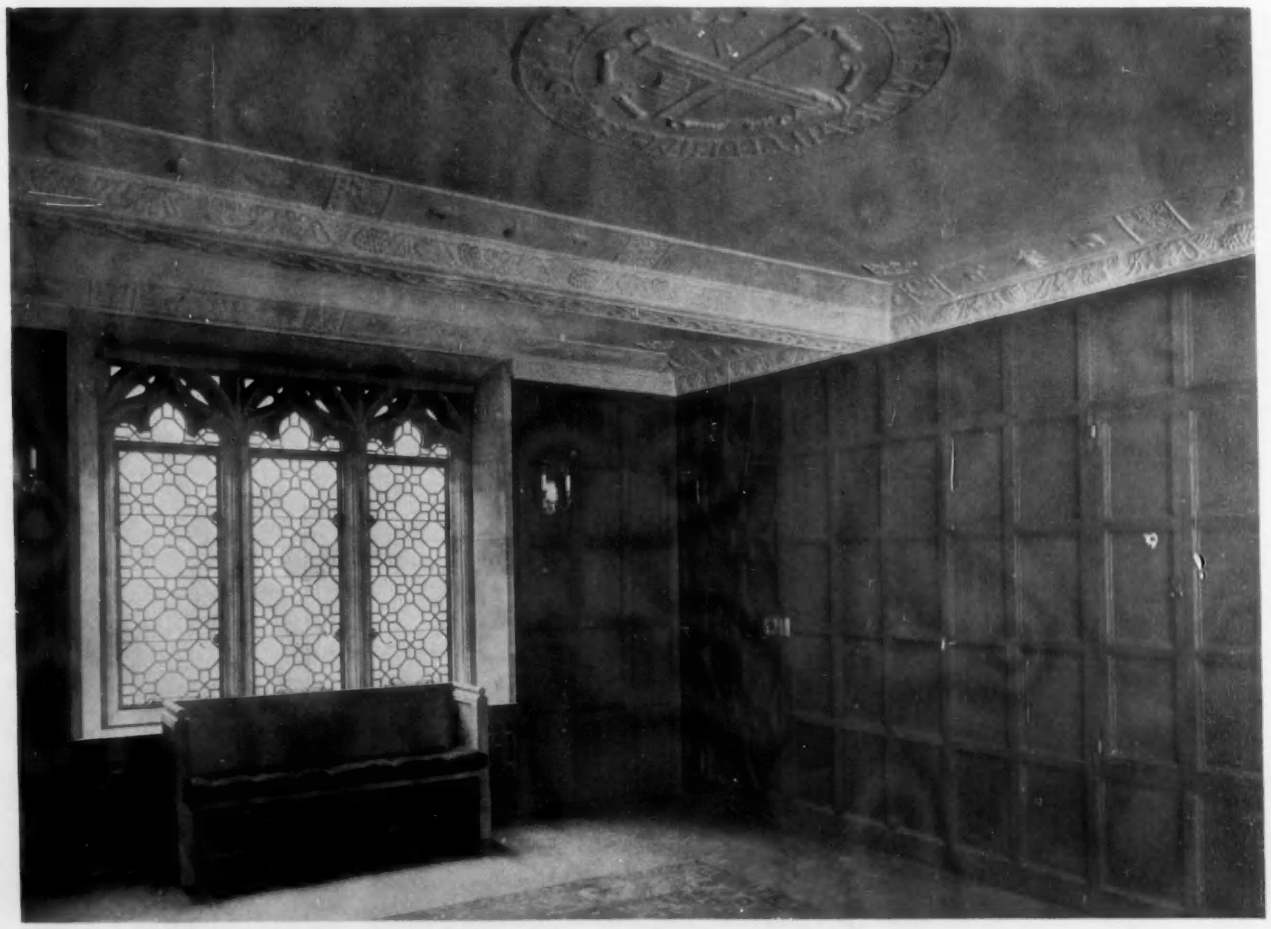
demonstrate how well the Colonial and Adam styles lend themselves to plaster decoration. In the rooms illustrated the composition, detail, and execution of the ornamental plaster work are all very successful, and the stair hall is especially good as illustrative of the charm of simplicity of design.

The ceiling of the Grace Chapin Memorial Hall at Williamstown, Mass., is an example of how the acoustic requirements of a vaulted room may be taken advantage of to give a decorative effect. The heavy ribs which serve a double purpose of giving a structural effect and of breaking up the sound waves that might produce an echo are here made the strong decorative feature and are properly relieved by the plain panel surfaces. The alternation of the rich and the comparatively plain circular panels is all part of the theory of contrast which we discussed earlier in this article, and the result is that while this ceiling is quite elaborate in detail, the *ensemble* does not appear to be overloaded. The ceiling of the foyer of the same building is an illustration of the value of a few bands of high relief ornament to give interest to a plain, flat ceiling crowning a rather elaborate wainscot and frieze.



Ladies' Parlor, First Baptist Church, Pittsburgh, Pa.
Cram, Goodhue & Ferguson, Architects

If space permitted, many other illustrations could be cited or shown to prove conclusively the ability of modern architects and decorators to produce results equal to the best of former centuries; to prove also that while in



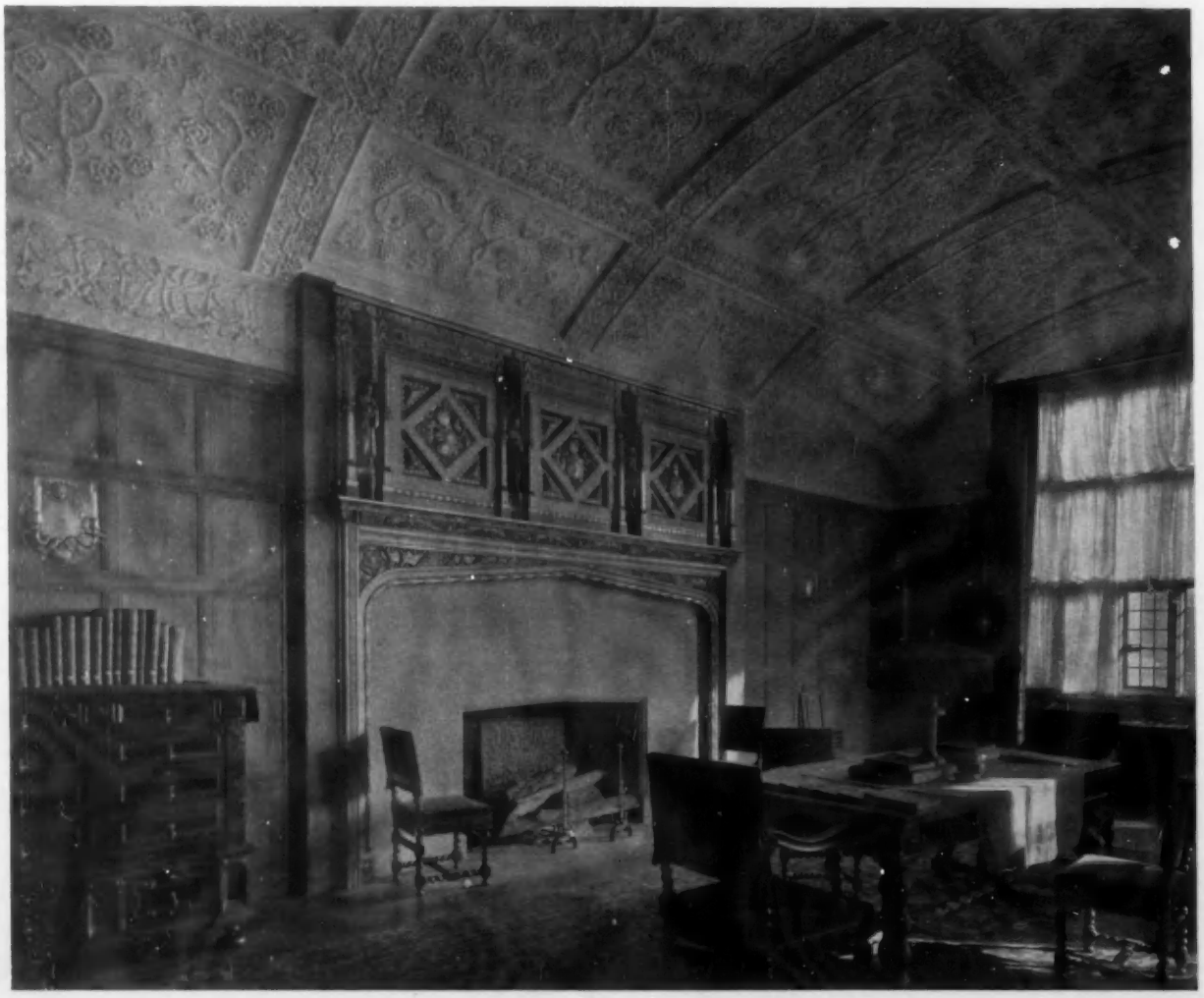
Sacristy, St. Thomas' Church, New York City
Cram, Goodhue & Ferguson, Architects

America we may have passed through an era of bad taste, there have always been some guiding lights who have shown us the way, either by criticism or created works, back to the paths of art and the appreciation of what is good and what is bad design.

Unfortunately it has not been possible to show color values or effects in the monotone reproductions, so this part of our subject will have to be left to the reader's observation of actual buildings that he may have the opportunity and inclination to visit and study.

So far as the development of any national style for interior design in America is concerned, travel and the study in foreign countries of examples of all styles and periods in art have tended to give a catholicity to our design that has prevented the development of any national style in a true sense of the word. While certain localities may have evolved some details or mannerisms that are peculiar to themselves, and individuals may have attempted to create new styles, modern designers as a rule have preferred to use the architectural and ornamental "vocabularies" that have stood the test of time. Our methods of construction and the *composition* of the design which they have brought about are all that we can boast of in the way of any national development — our style remains an adaptation or copy of the best that other countries and ages have produced, even as our delightful Colonial style was but an attempt to reproduce more or less from memory the work of the Georgian period which was the dominating spirit in England at and prior to the time the American colonies were becoming sufficiently settled to build anything architectural.

The subject of modern ornamental plaster work being so closely identified with the study of the architecture of which it is a part, it has been necessary to include a brief survey of the architectural development of to-day in order to show properly the resultant influence on plaster work. We have purposely avoided technical details of all the various processes of manufacture, believing that these, while interesting, have only played a secondary part in the development of ornamental plaster work from the view-point that properly lies within the scope of this paper, namely that of the architectural designer.



Reception Room, Office of Bertram Grosvenor Goodhue, Architect, New York City

THE FORUM COLLECTION OF EARLY AMERICAN ARCHITECTURAL DETAILS

PLATE THIRTY-NINE

THIS doorway is remarkably fine in scale and adjustment of detail. None of the mouldings is unusual, though all are very handsome and well balanced. The panel treatment with double mouldings is rather uncommon. No attempt has been made to introduce any ornamentation into the spandrel above the arch. This plain spot, however, is pleasing in itself and quite in keeping with the general simplicity of the design. The house stands with its gable end toward the street, an indication that in period it stands on the border land of the so-called Colonial and at the threshold of the next phase—the Greek Revival.

FRONT ENTRANCE OF HOUSE AT HAMPTON, CONN.

Built about 1820

MEASURED DRAWING ON FOLLOWING PAGE

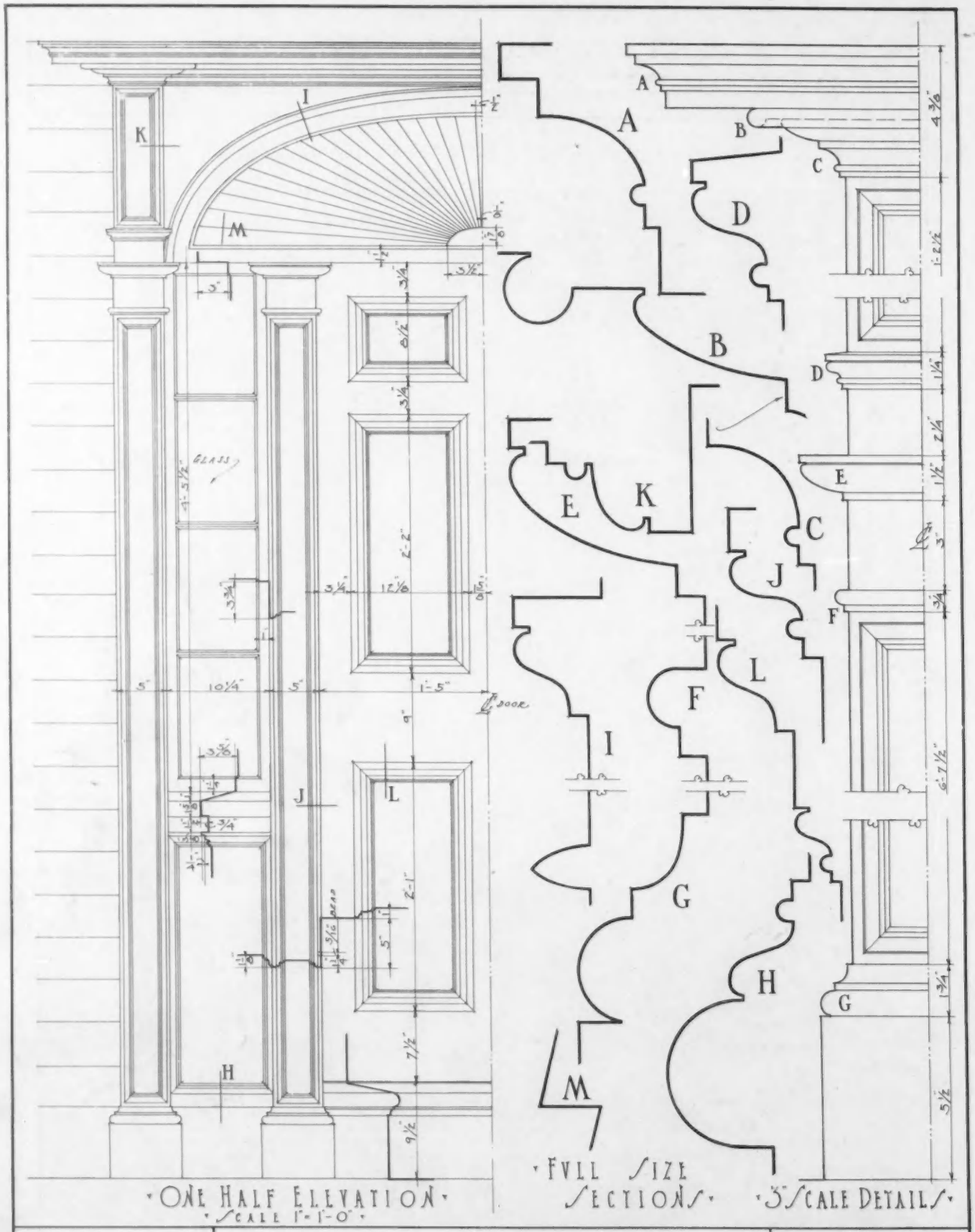
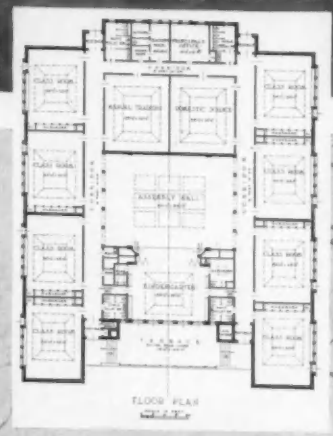
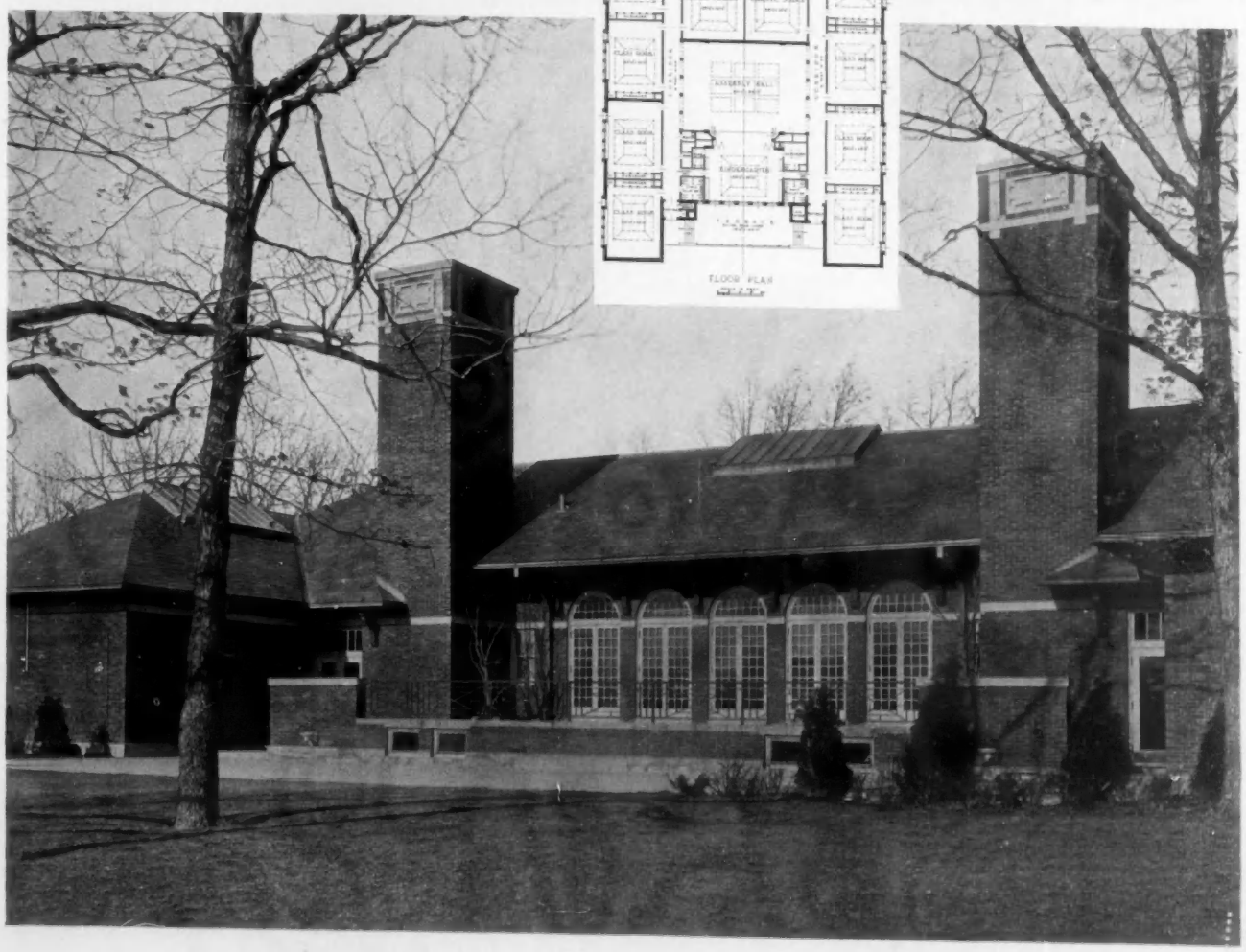


PLATE 39 APRIL 1917	HOVSE AT HAMPTON-CONN FRONT ENTRANCE BVILT CIR·1820	MEASVRED AND DRAWN BY J·FREDERICK KELLY·

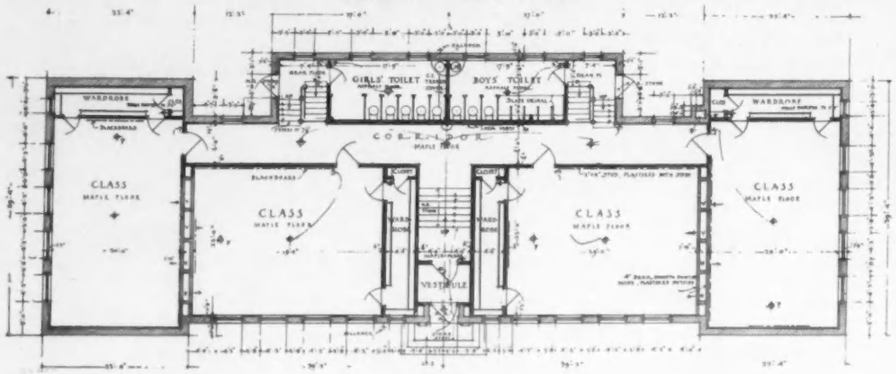




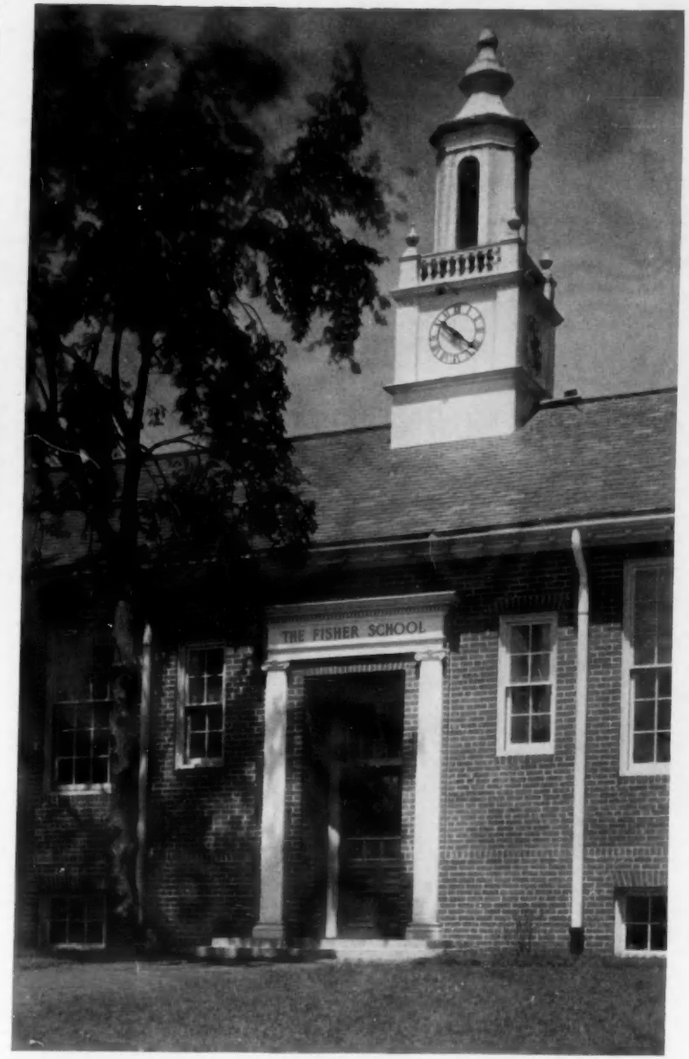
SKOKIE SCHOOL, WINNETKA, ILL.

PERKINS, FELLOWS & HAMILTON, ARCHITECTS

GENERAL VIEW OF EXTERIOR



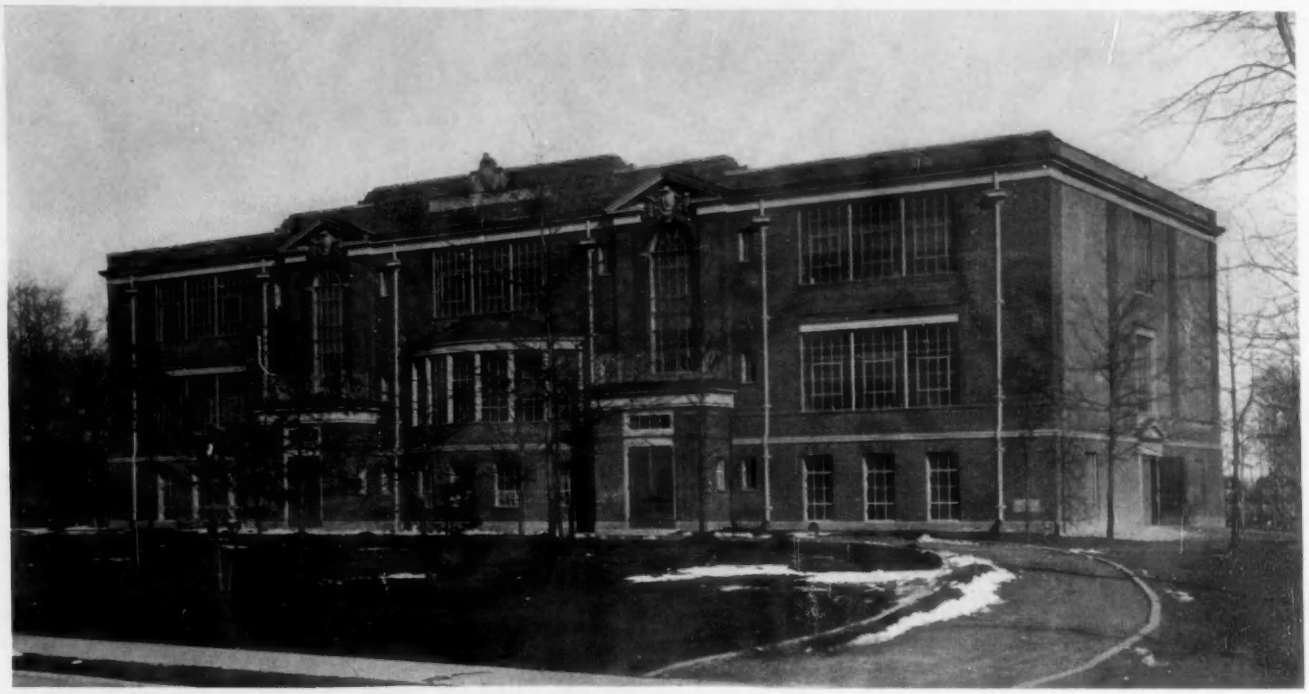
FIRST FLOOR PLAN



DETAIL OF ENTRANCE AND CUPOLA

FISHER SCHOOL, NORTH WALPOLE, MASS.

R. CLIPSTON STURGIS, ARCHITECT



GENERAL VIEW OF EXTERIOR

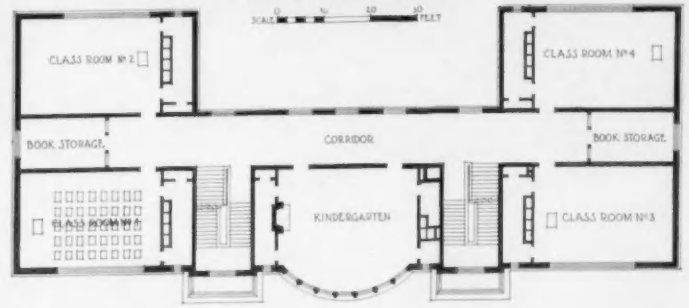
DETAIL OF ENTRANCE FRONT

MORRIS SCHOOL, ROCKVILLE CENTRE, LONG ISLAND, N. Y.

BLANCHARD & BARNES, ARCHITECTS

DETAIL OF ENTRANCE

VIEW OF KINDERGARTEN



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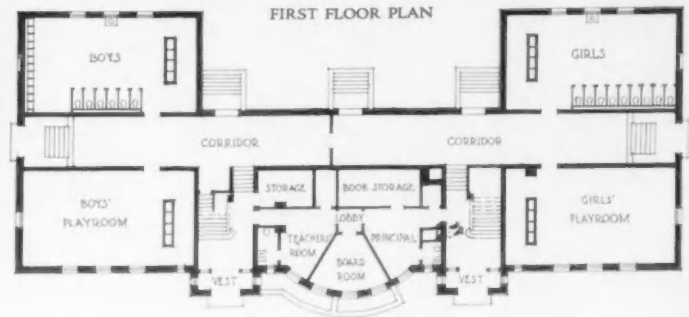
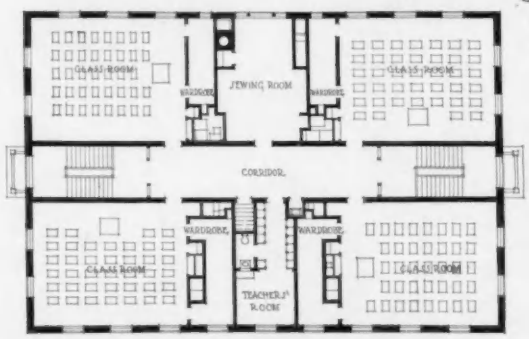


BASEMENT FLOOR PLAN

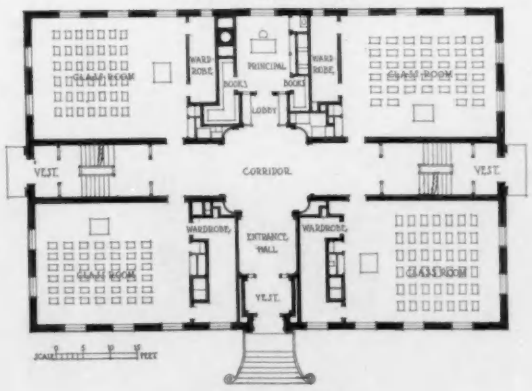
MORRIS SCHOOL, ROCKVILLE CENTRE, LONG ISLAND, N. Y.

BLANCHARD & BARNES, ARCHITECTS

GENERAL VIEW OF EXTERIOR



SECOND FLOOR PLAN

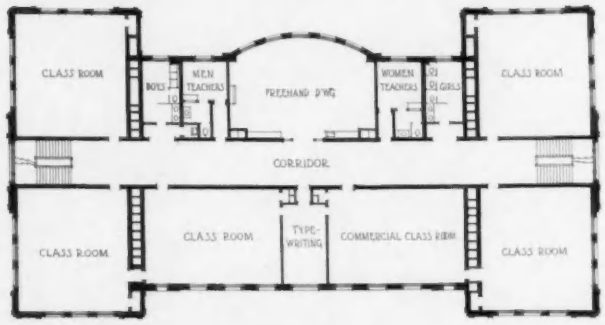


FIRST FLOOR PLAN

DETAIL OF ENTRANCE

GRADE SCHOOLHOUSE, NORTH EASTON, MASS.

CHARLES M. BAKER AND STANLEY B. PARKER, ARCHITECTS



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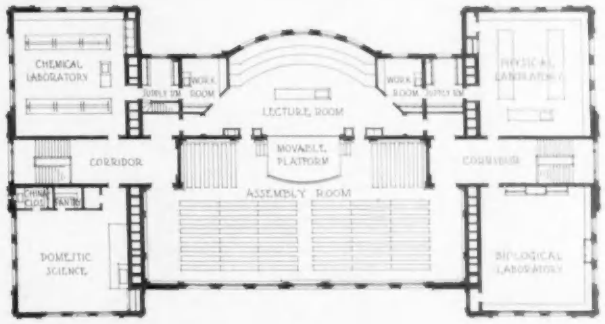
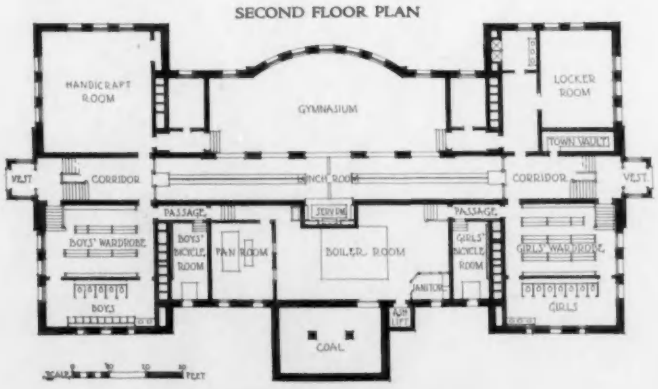


THIRD FLOOR PLAN



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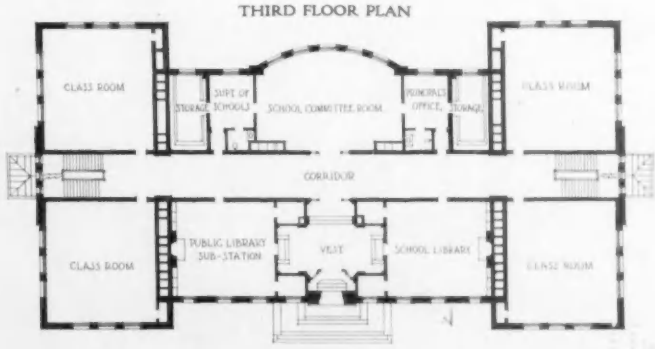
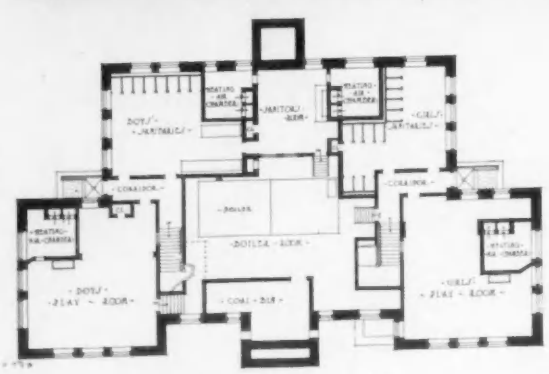


FIRST FLOOR PLAN

FRAMINGHAM HIGH SCHOOL, FRAMINGHAM, MASS.

CHARLES M. BAKER, ARCHITECT



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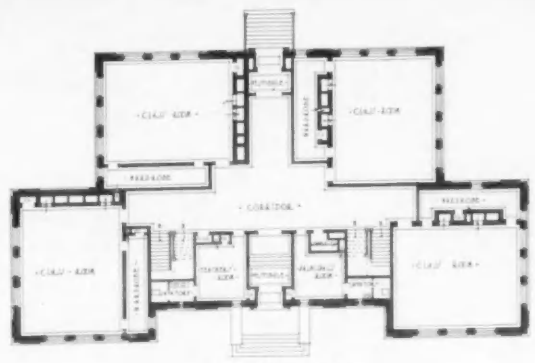
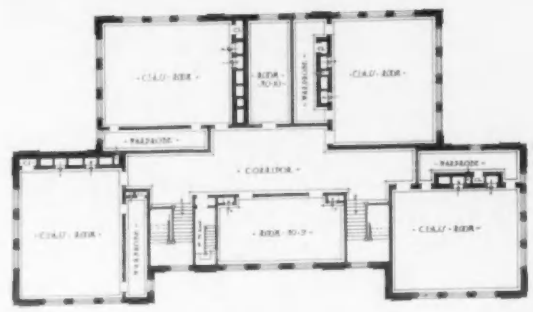


FIRST FLOOR PLAN

PETER BULKELEY SCHOOL, CONCORD, MASS.

DERBY & ROBINSON, ARCHITECTS



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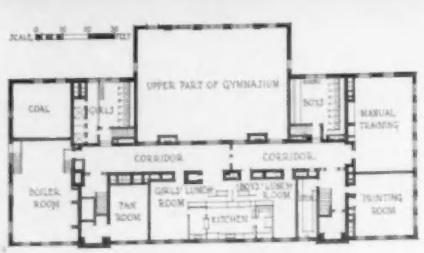

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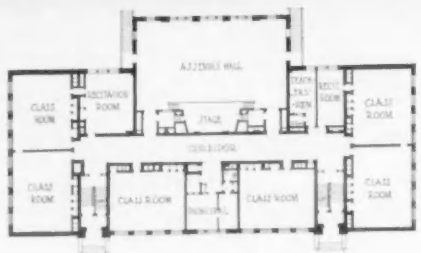

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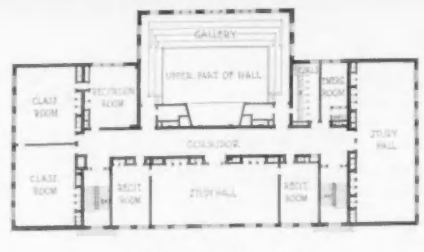

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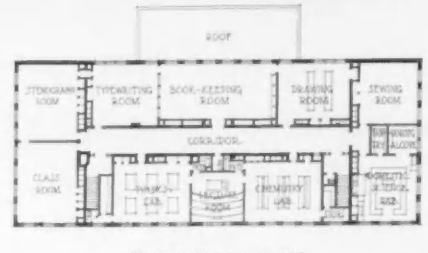
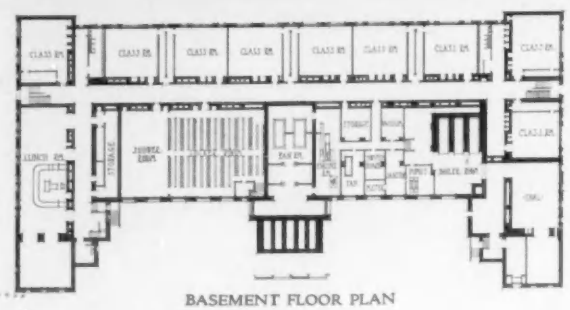


THIRD FLOOR PLAN

DEDHAM HIGH SCHOOL, DEDHAM, MASS.

KILHAM & HOPKINS, ARCHITECTS



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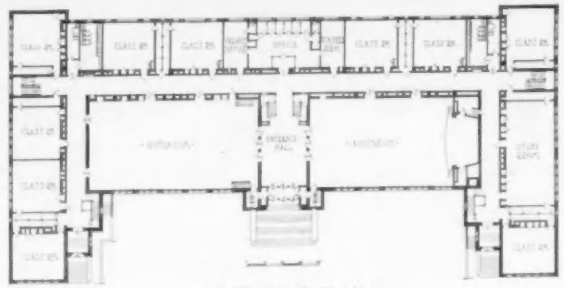

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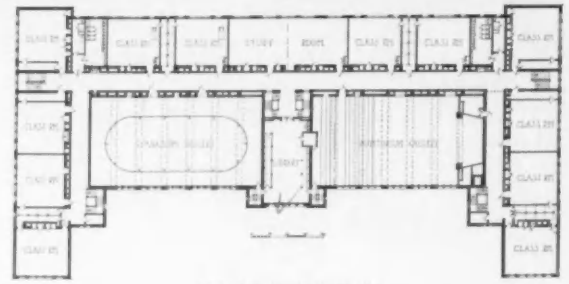
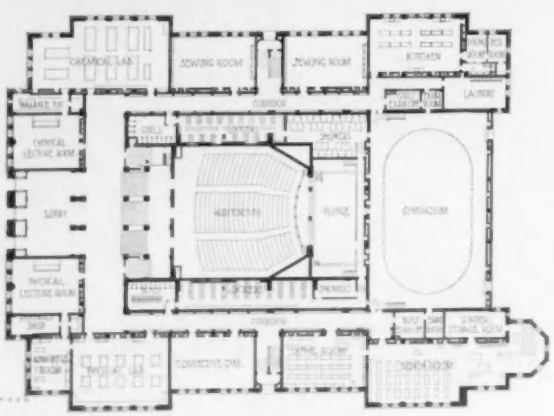


SECOND FLOOR PLAN

HIGH SCHOOL OF COMMERCE, BOSTON, MASS.

C. HOWARD WALKER AND KILHAM & HOPKINS, ASSOCIATED ARCHITECTS



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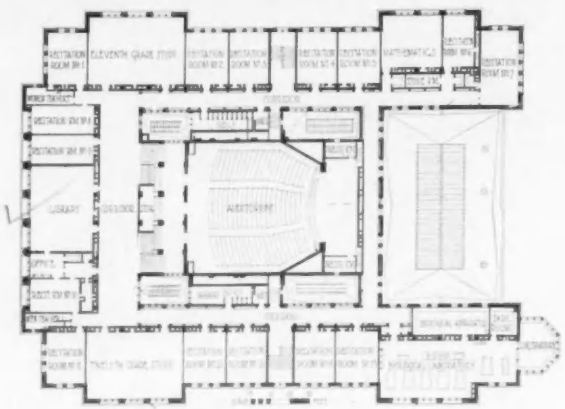

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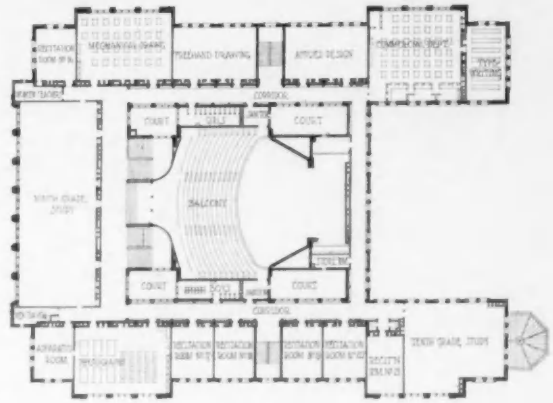


THIRD FLOOR PLAN

NORTHERN HIGH SCHOOL, DETROIT, MICH.

MALCOMSON & HIGGINBOTHAM, ARCHITECTS

ELEVATION OF ENTRANCE SIDE

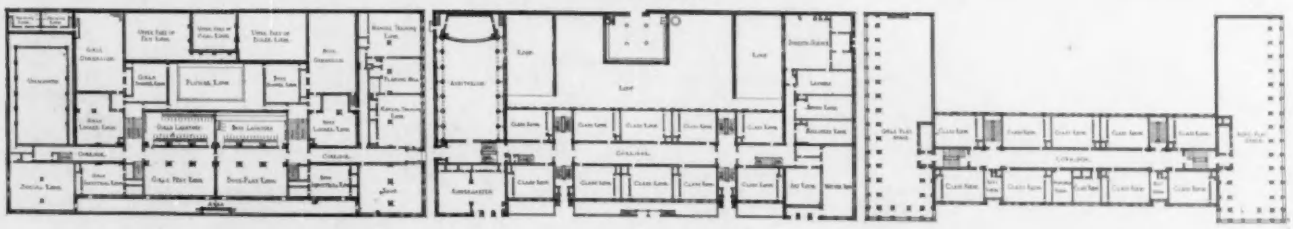
DETAIL OF ENTRANCE SIDE

NORTHERN HIGH SCHOOL, DETROIT, MICH.

MALCOMSON & HIGGINBOTHAM, ARCHITECTS

GENERAL VIEW OF EXTERIOR

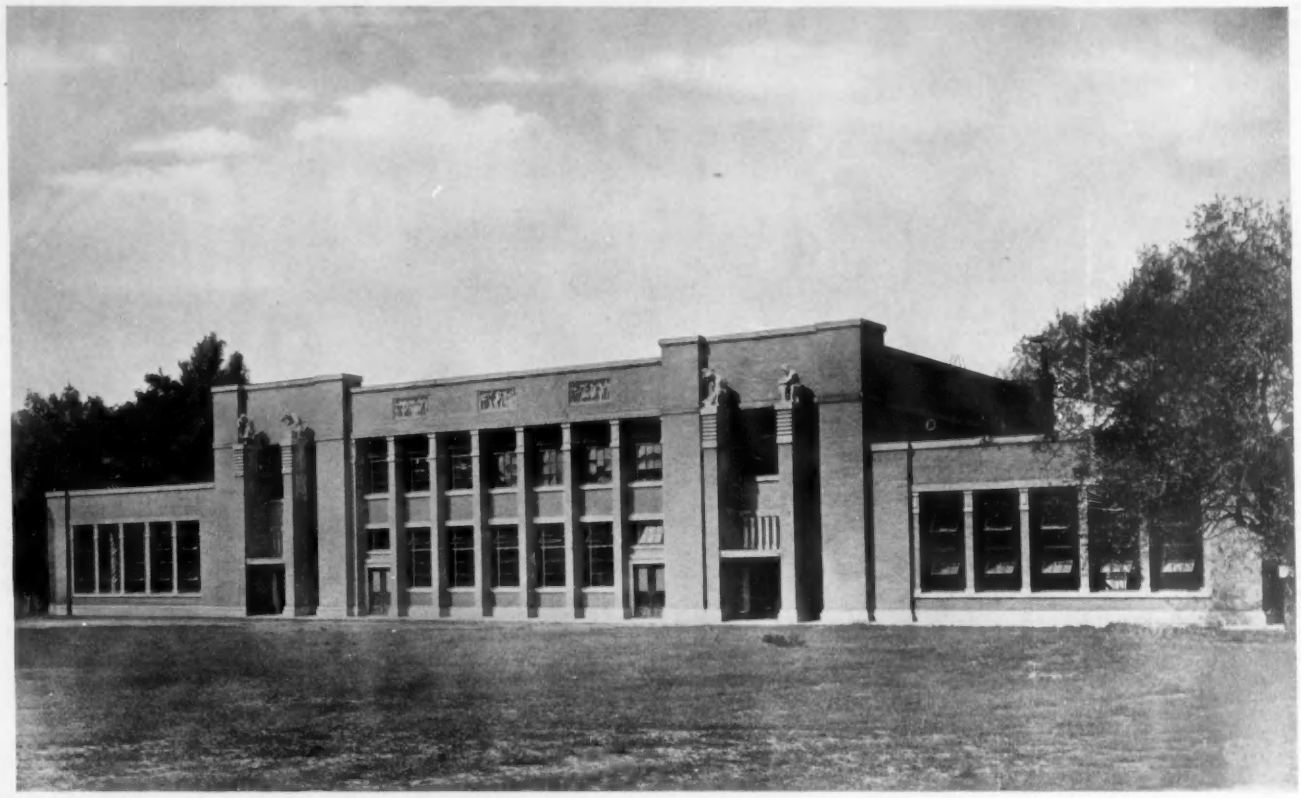
AUDITORIUM



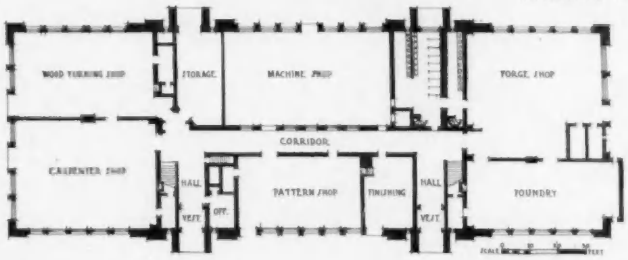
BASEMENT FLOOR PLAN FIRST FLOOR PLAN SECOND FLOOR PLAN

LAFAYETTE BLOOM SCHOOL, CINCINNATI, OHIO

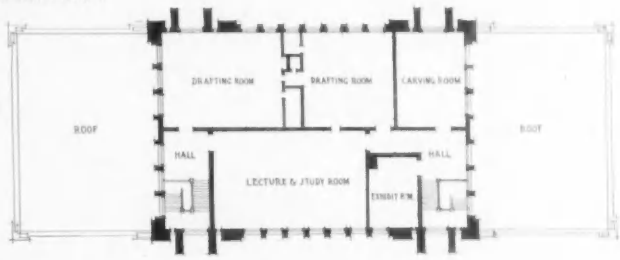
GARBER & WOODWARD, ARCHITECTS



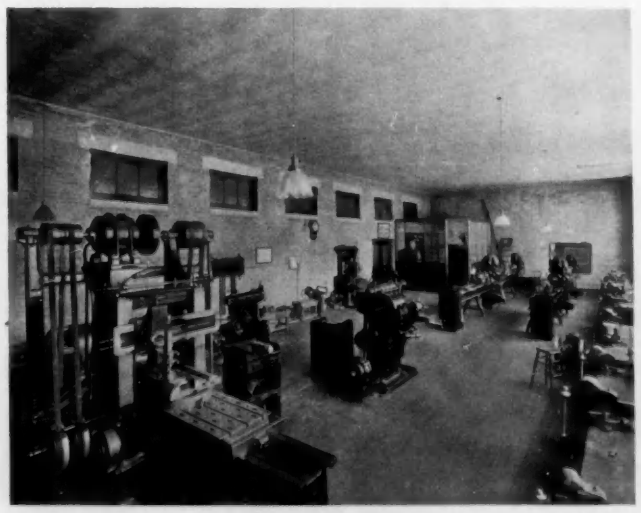
GENERAL VIEW OF EXTERIOR



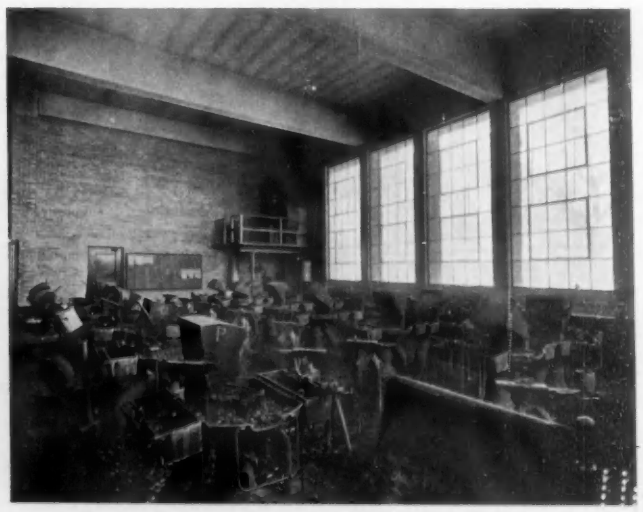
FIRST FLOOR PLAN



SECOND FLOOR PLAN



MACHINE SHOP

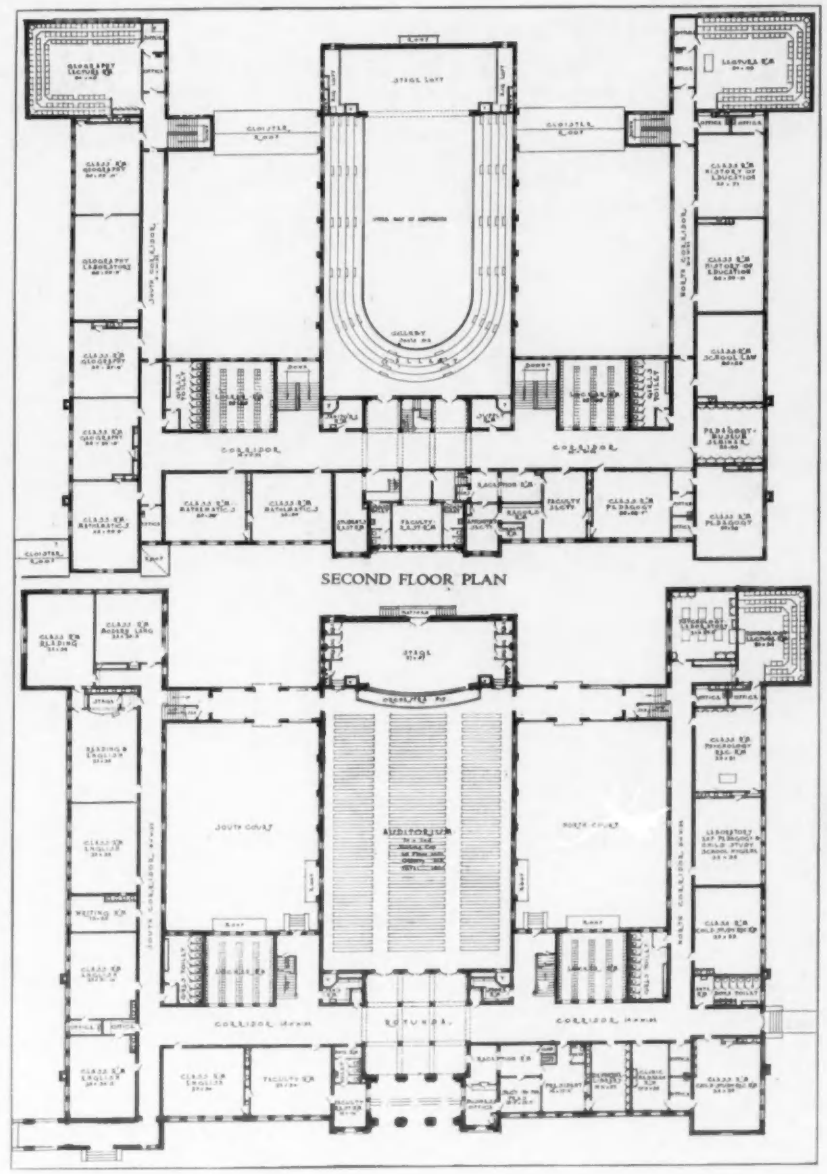


FORGE SHOP

TECHNICAL HIGH SCHOOL, SALT LAKE CITY

CANNON & FETZER, ARCHITECTS

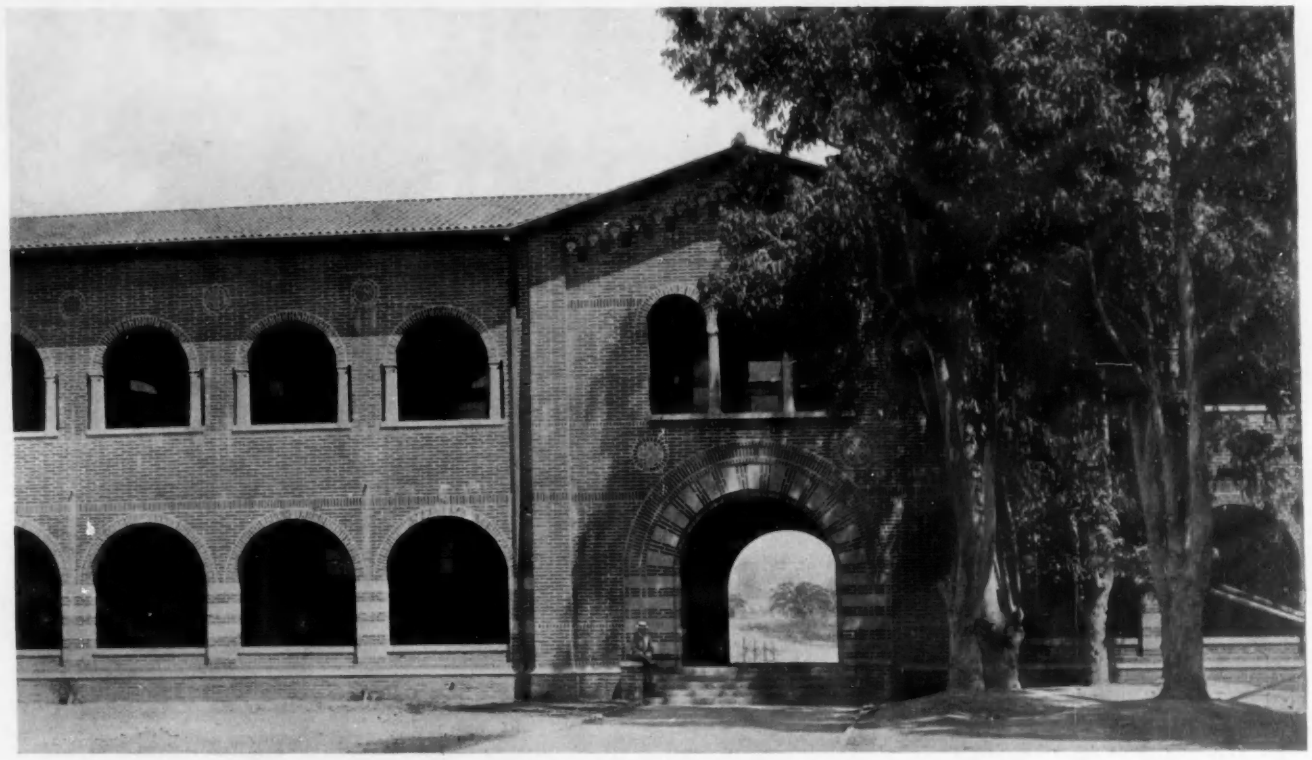
DETAIL OF ENTRANCE PAVILION



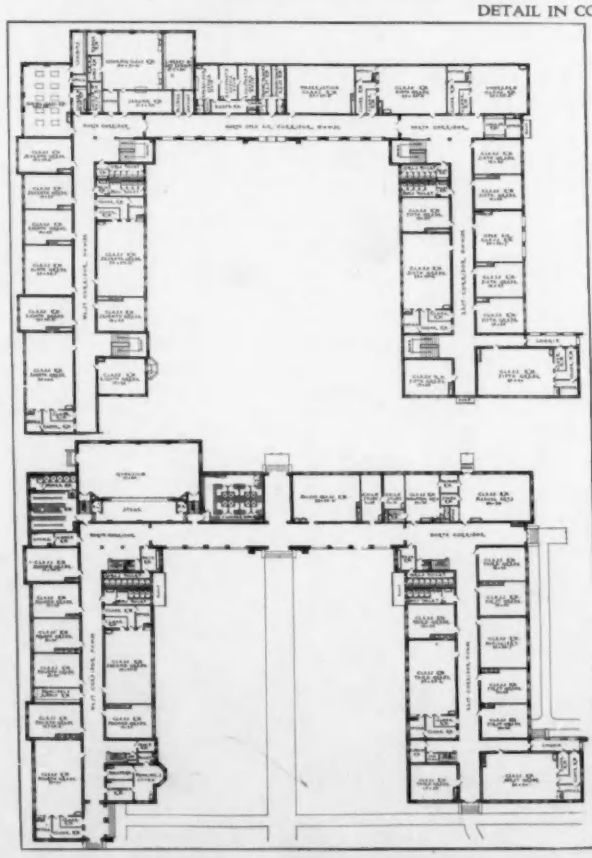
FIRST FLOOR PLAN

ADMINISTRATION BUILDING, STATE NORMAL SCHOOLS, LOS ANGELES, CAL.

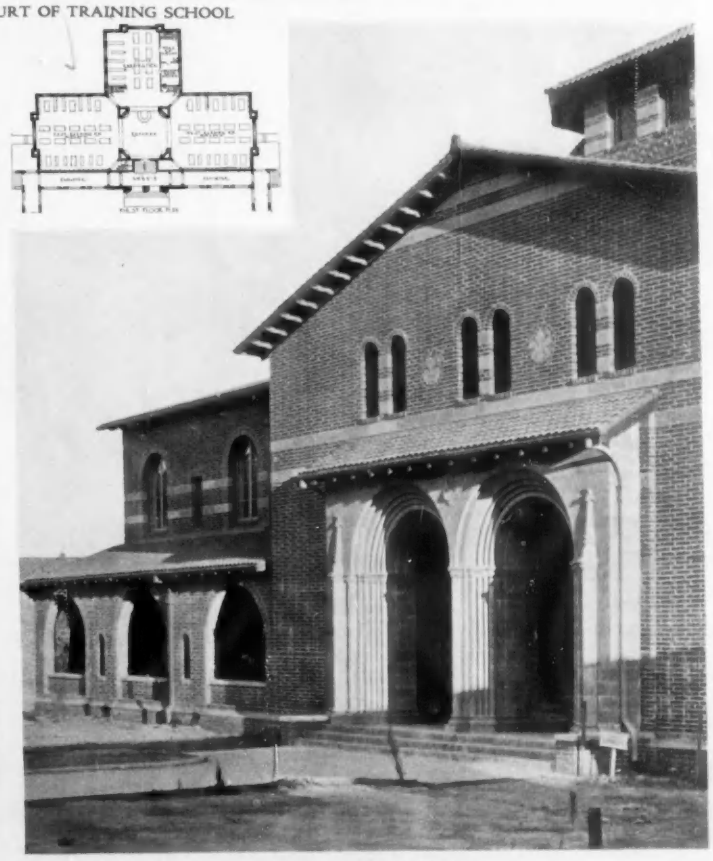
ALLISON & ALLISON, ARCHITECTS



DETAIL IN COURT OF TRAINING SCHOOL



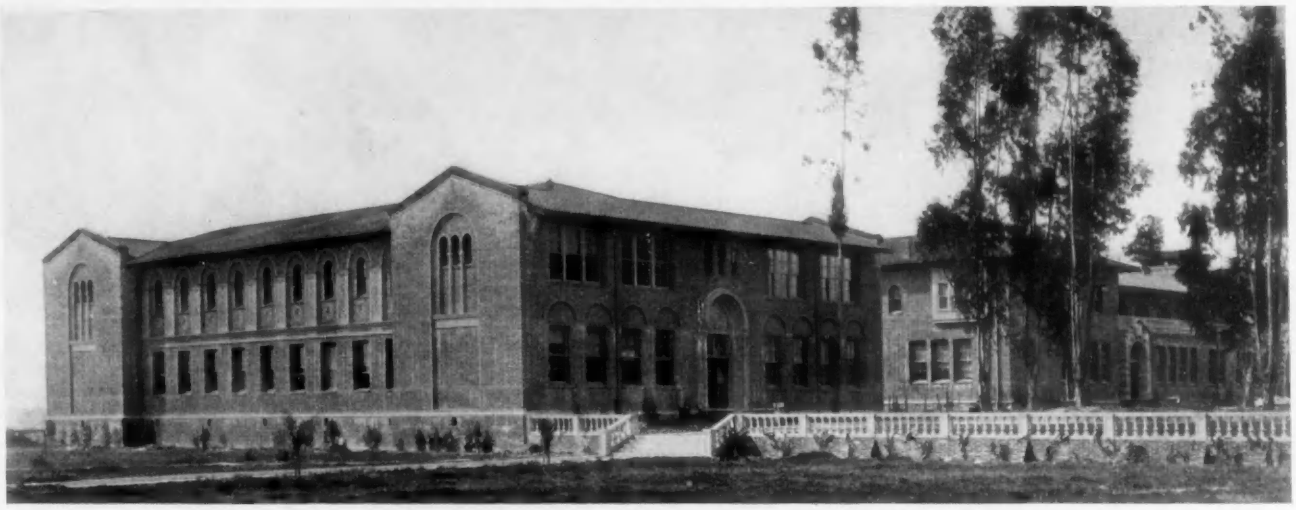
FIRST AND SECOND FLOOR PLANS OF TRAINING SCHOOL



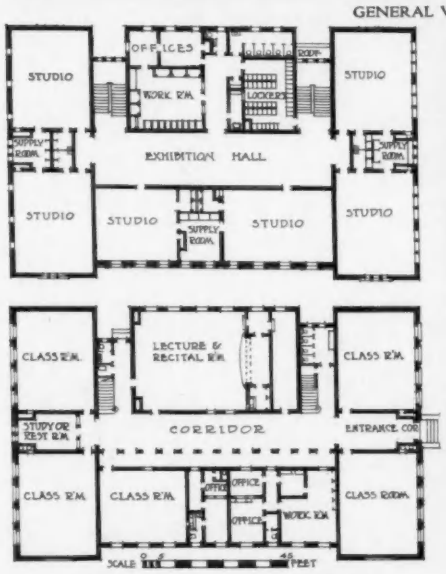
ENTRANCE TO LIBRARY

STATE NORMAL SCHOOLS, LOS ANGELES, CAL.

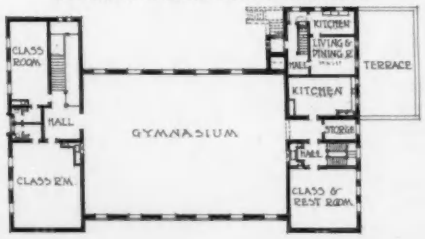
ALLISON & ALLISON, ARCHITECTS

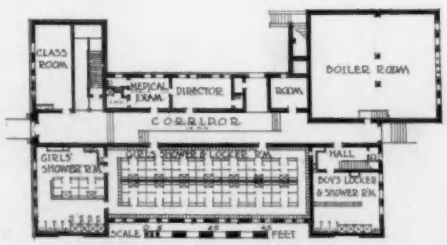


GENERAL VIEW OF FINE ARTS AND DOMESTIC SCIENCE BUILDINGS



FLOOR PLANS, FINE ARTS BUILDING



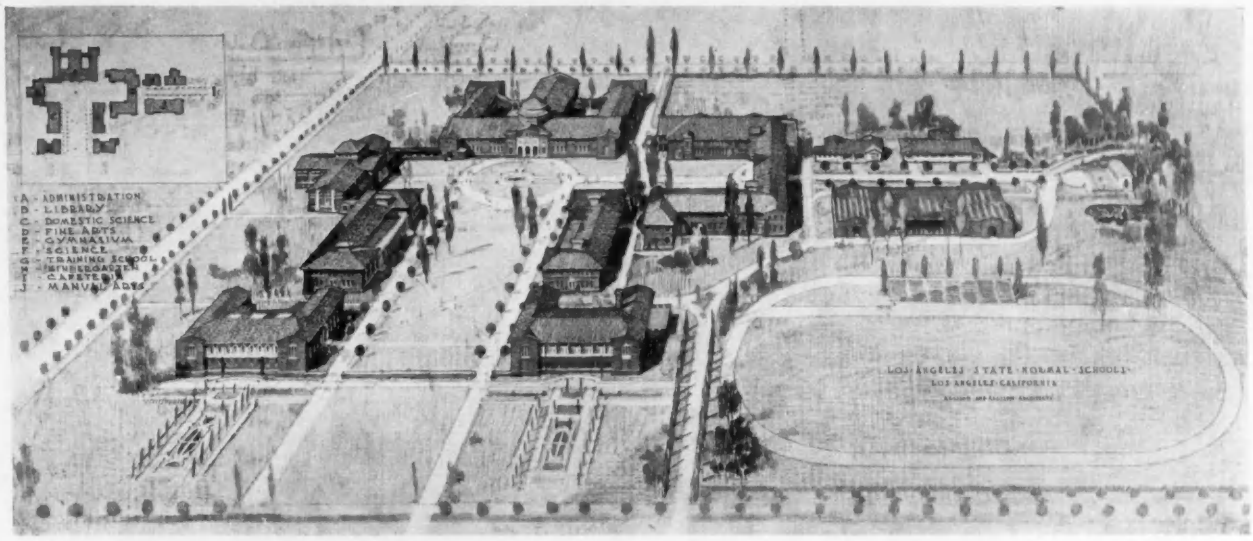


FLOOR PLANS, GYMNASIUM

DETAIL OF ENTRANCE TO GYMNASIUM

STATE NORMAL SCHOOLS, LOS ANGELES, CAL.

ALLISON & ALLISON, ARCHITECTS



Los Angeles State Normal Schools, Los Angeles, Cal.

ALLISON & ALLISON, ARCHITECTS

THE site occupied by this group of buildings covers twenty-five acres, with frontages of 1,254 feet on Vermont avenue and Heliotrope Drive, and 800 feet on Monroe and Willowbrook avenues. The group is one of the largest on the Pacific coast and has been executed in a style of architecture inspired from the Lombard Romanesque of Northern Italy. The chief material is a dark red brick, with artificial stone trimmings and tile roofs. All halls and stairs have been constructed throughout of fireproof materials. The total cost of the work was about $550,000.

The Administration Building is 260 feet long by 202 feet deep, and contains offices and class rooms for the departments of Child Study, Psychology, Pedagogy, History of Education, School Law, Reading, History, Mathematics, English, Modern Languages, Geography, etc. There are also an auditorium, with a seating capacity of 1,650 persons, and various rest rooms, department libraries, health examiner's room, women's club rooms, and other minor rooms.

Entrance Detail, Domestic Science Building

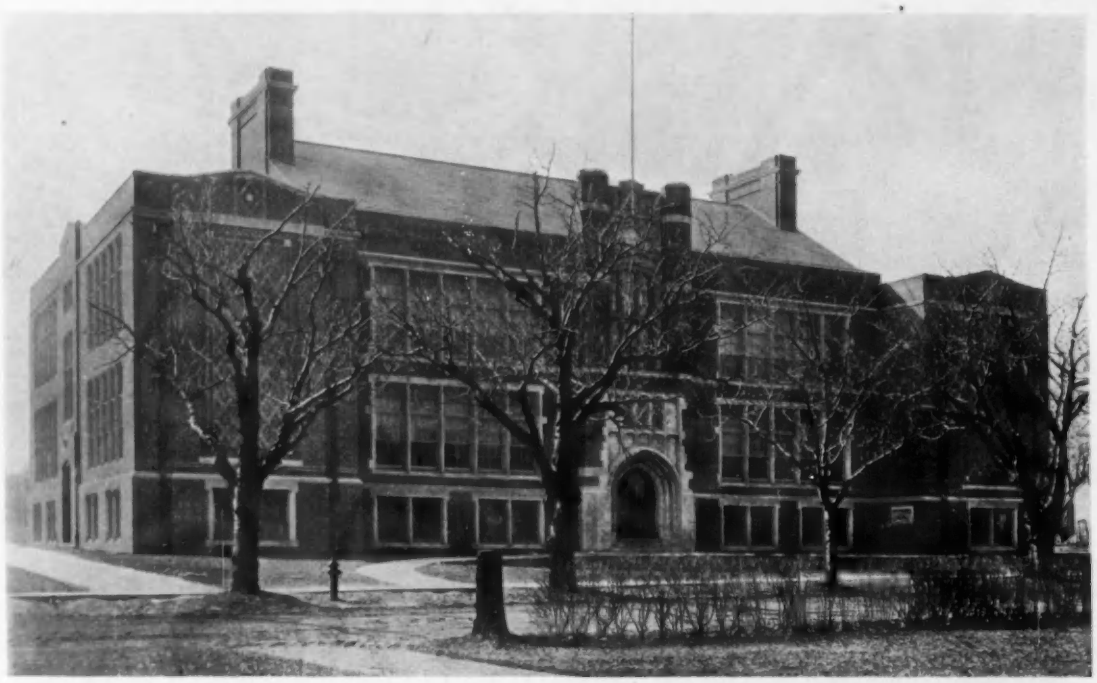
The Library Building contains a general reading room, accommodating 350 readers, and a children's department. It has stack room for 50,000 volumes, with a librarian's room, a reception room, magazine rooms, class rooms, students' book store, printing office, store rooms, etc.

The Domestic Science Building accommodates classes in Leatherwork and Bookbinding, Clay and Concrete, Drawing, Weaving and Textiles, Cardboard Work, Sewing, Millinery, and Cooking. It also contains a model apartment for instruction in housekeeping, lecture rooms, rest rooms, and other conveniences.

The Fine Arts Building contains on the first floor class rooms for music, an auditorium and stage for musical productions, a library, and various offices and other minor rooms. On the second floor are studios, offices, supply rooms, and a large exhibition gallery.

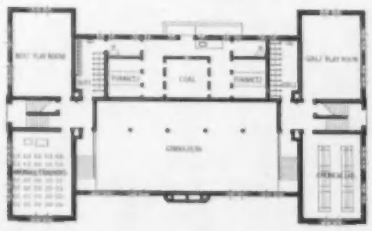
The Gymnasium Building, which balances the Fine Arts Building in plan, contains the main gymnasium hall, with locker, shower, and dressing rooms, a living apartment for the caretaker, and a heating plant for the entire group of buildings. The heating is by steam, all air used in any of the buildings being mechanically washed and humidified.

The Training School Building contains departments for grade work, sewing and cooking departments, rooms for observation classes, supervisors' offices, principal's office, emergency room, and various minor study and rest rooms. There are also a complete gymnasium equipment for boys and girls, a library, and a manual training department.

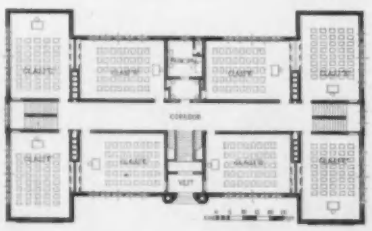


ENTRANCE DETAIL

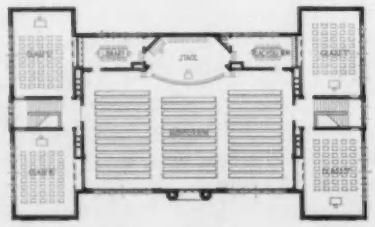
VIEW OF AUDITORIUM



BASEMENT FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN

MIDDLETOWN TOWNSHIP HIGH SCHOOL, LEONARDO, N. J.

BRAZER & ROBB, ARCHITECTS

Practical Perspective Methods for Office Use

By ROBERT FULLER JACKSON

SECOND PAPER

IN the perspectives made by architects it often happens that the vanishing points, or at any rate one of them, will not be on the board. The same may occur for measure points. When this occurs various devices are used to overcome the resulting difficulties.

INACCESSIBLE VANISHING POINTS. The most common device when the vanishing point is inaccessible is the use of a railroad curve, or a special curve cut out of wood or cardboard, as shown in Fig. 11. With this device the edge of the T-Square should be equally distant from the two ends of the head, in order that it may draw a true radius to the arc of the curve. If no such T-Square is at hand, small brads may be driven into the head of an ordinary T-Square at equal distances from the edge of the blade, so as to permit its use. Either the outside or the inside of the curve strip may be used to give the direction of vanishing lines, as shown in the figure, if the strip is so cut that each of the arcs has the proper radius, the respective centers being the actual V.P.'s, its two sides are based on different radii so as to be used for two different vanishing points as centers of the two circles.

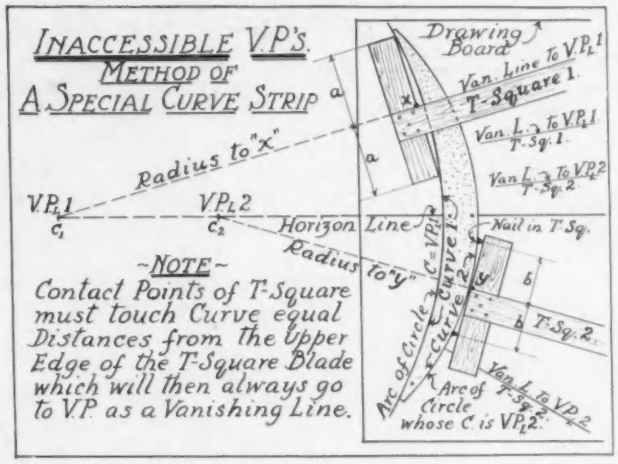


Figure 11

It is necessary, however, to know the location of the vanishing point in order that the curve may have the correct radius and be properly located on the board. Moreover, the cutting of accurate curves is a task of some difficulty. Figure 12 shows a little-known method for obviating these difficulties, by the use of a series of strips of lath, in place of the curve. To use them a single vanishing line must first be determined, preferably the highest in the picture. The T-Square blade is set on this line, and a lath nailed to the board, in contact with its head, as shown, care being taken to have the lower end of the lath coincide with that of the T-Square head. The T-Square is then placed with its blade along the horizon, and a second lath nailed to the board, with its upper end touching the lower end of the first lath, and placed so that the lower end of the T-Square head touches it. The length of this lath should be equal to that of the T-Square head. For lower lines a third lath is set in place, its angle with the second being equal to the angle between the second and first. The T-Square, sliding on these laths, always radiates to *very nearly* the same point. There is a slight error, as the series of straight lines does not coincide with the mathematically correct curve, but for architectural purposes it is inappreciable.

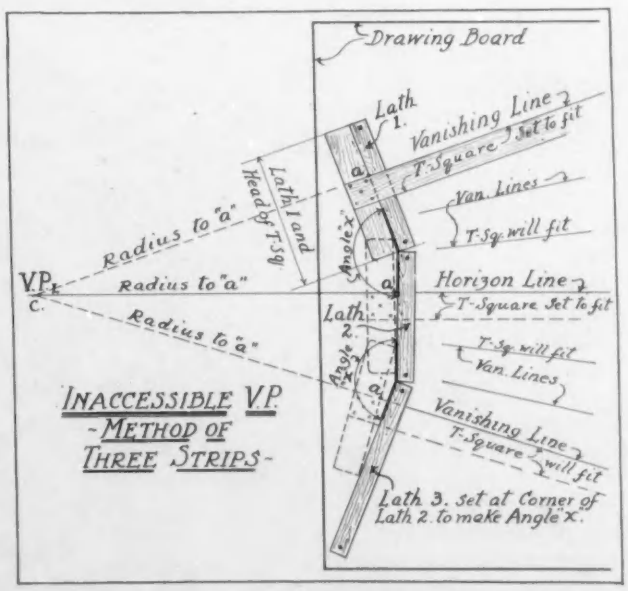


Figure 12

MEASURE POINTS. Where one of the vanishing points is inaccessible, its corresponding measure point may be found as shown in Fig. 13. One measure point having been found, by the use of an arc in plan, having its center on the vanishing point, and its radius equal to the distance from vanishing point to station point, the lines drawn from station point to the two measure points must make an angle of 45 degrees. The proof of the correctness of this construction is as follows:

$$\text{Angle } \alpha = 180^\circ - 2\gamma$$
$$\text{Angle } \beta = 180^\circ - 2\delta$$
$$\alpha + \beta = 90^\circ$$

Adding,

$$360^\circ - 2(\gamma + \delta) = 90^\circ$$
$$180^\circ - (\gamma + \delta) = 45^\circ$$

But

$$\epsilon = 180^\circ - (\gamma + \delta)$$
$$\therefore \epsilon = 45^\circ$$

In practice, however, the measure points may be found even more simply. Given a horizontal receding line in perspective, extend this line to P.P. in

a G.L. and draw to V.P. To measure this line or to lay off on this line any distance or measure, lay it off on G.L. at the same scale as the plan, and draw to M.P.; or if M.P. is inaccessible, or the measure on G.L. falls off the paper, lay off half or quarter the measure on G.L. and draw to a point on H.L. equal to half or quarter the distance from V.P. to M.P. and connect. These are "fractional" M.P.'s and the scales on G.L. are "fractional" scales to correspond. With this method, any scale may be used on G.L., larger or smaller than that of the plan. A smaller scale is often convenient, where the laying out of distances at full scale would make a measure line that could not be contained in the limits of the drawing. A variation in the scale used in measure lines will also in many cases give better intersections with the vanishing line.

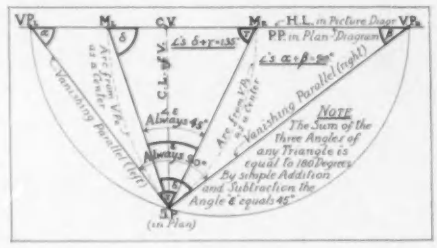


Figure 13

CHANGE OF SCALE. It is often convenient to make a change in scale graphically, directly on a drawing. Lines drawn parallel to the base of a triangle will cut the other two sides proportionally (Fig. 14). If the free ends of two lines are connected by another line as a base, either of the first two lines, divided into any measures, can be transferred proportionally to the other line by lines drawn parallel to the third (base of triangle).

This principle can be used in making fractional scales for fractional points, and is used in Fig. 15 in establishing a definite "architectural" scale from a "nondescript," but proportionally correct, scale of the ground line and line of height in the "Inverse Process" of making a plan and elevation from a photograph.

INVERSE PERSPECTIVE. If a perspective drawing can be made from a scale plan and elevation of an object, the reverse should also be possible. Such is the case if the position of the S.P. is known, and it is nearly always possible to locate S.P. from some line in the perspective.

A photograph is a perspective projected upon a straight P.P., the film or glass plate being the P.P. behind the camera lens, just as the image formed on the eye's retina is projected on a spherical P.P. behind the lens of the eye.

The distance from the lens to the P.P. is the distance from S.P. to the P.P., and the line drawn from the center of the lens (S.P.) perpendicular to P.P. is the center line of vision, corresponding to the "central direction of seeing." In a photograph or in a perspective drawing the C.L. of V. is not always the geometrical center of the picture. In a drawing it may be desirable to shift this C.L.V. to one side of the center of the "visual angle" or center of the limits of the picture in order to secure a better composition of lines, or to include some object of interest. In a photograph the print may be trimmed so as to make a better composition, thus throwing the C.L.V. to one side of the center of the finished picture, or the "back" or P.P. may be tilted so as to be vertical when the camera is pointed up or down, in order to avoid the appearance in the picture of converging lines which are really vertical in the object.

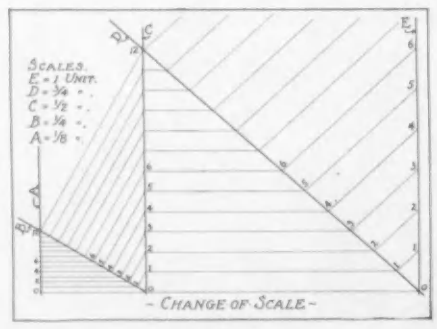


Figure 14

In any case, unless the exact position of S.P. and the C.L.V. is determined, the inverse (or reverse) process will not be accurate. For the whole process depends upon perspective positions of points (measurements on vanishing lines) being brought forward to the P.P. in lines of height or ground lines which can be measured, and unless the correct positions of M.P.'s are found, lines from these points to G.L.'s will not measure off true scale measures of points from vanishing lines. The position of the M.P.'s is always found on H.L. by laying off the distance to S.P. from V.P., so that the importance of fixing S.P. accurately is seen. When once the S.P. is determined, the rest of the reverse process is simple.

In the previous paper we found that the bisector of an angle of 90 degrees in plan was very useful in shortening perspective work. In "Inverse Perspective" the V.P. of this bisector (D.V.P.) is invaluable. For if we know the position of D.V.P. on H.L., we can find the S.P., the C.L.V., and then the M.P.'s. In any perspective (including a photograph) there is usually some "clue" or line which is the bisector of two lines which meet in plan at 90 degrees. This is all that is needed to establish S.P. The process is sometimes roundabout, but easy.

For example, if there is an object in the picture, with one or more lines in plan which are parallel to the central direction of seeing (C.L.V.), *i.e.*, perpendicular to P.P., the S.P. must be directly below C.V. on a line perpendicular to the H.L. (or line connecting the two V.P.'s and on the semicircle constructed upon it between the V.P.'s as a diameter).

Or there may be a square in the picture lying in a horizontal plane. The diagonal from the nearest to the farthest corner, extended, will cut H.L. in a point which is its V.P. (*the* D.V.P.). Referring to the drawing (Fig. 15) a line drawn at the center of the diameter $V.P._L$ — $V.P._R$ perpendicular to it will cut the great circle at its summit. A line from this point drawn through D.V.P. will cut the circle on the opposite side at S.P.

Figure 15 shows a problem which has no apparent "key line." But by observing carefully, we note that the roof hip, which we can assume is a bisector of the cornice lines in plan, being the intersection of two roof slopes making the same angle, is such a "clue" or "key line."

This "key" hip line is a start in this solution, but does not give us the D.V.P. directly on H.L. from which to find C.L.V. and S.P. and the M.P.'s. But a vertical plane passing through this hip line will vanish in the same vertical H.L. as its vanishing parallel plane through

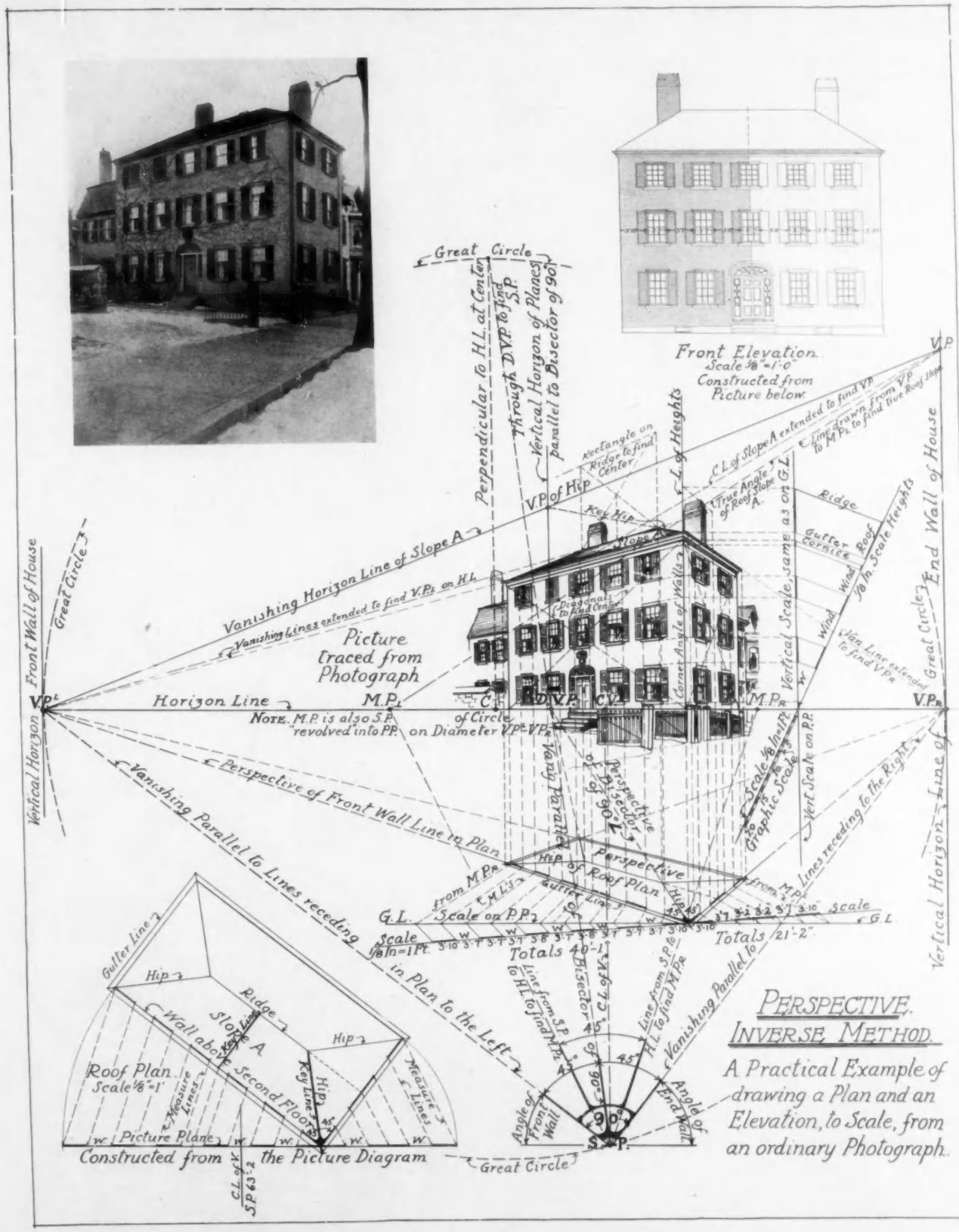

Front Elevation
Scale ⅛"=1'-0"
Constructed from
Picture below
Great Circle
Perpendicular to H.L. at Center
Through D.V.P. to find S.P.
Vertical Horizon of Planes
Parallel to Bisector of 90°
V.P.
V.P. of Hip
Key Hip
Ridge
Gutter Cornice
Wind Roof
Vanishing Horizon Line of Slope A
Vanishing Lines extended to find V.P.s on H.L.
Picture
traced from
Photograph
Horizon Line
M.P.L
M.P.R
V.P.L
V.P.R
Note. M.P. is also S.P. revolved into P.P.
of Circle on Diameter V.P.L-V.P.R
Front Wall of House
End Wall of House
Great Circle
Vertical Scale, same as on G.L.
Perspective of Front Wall Line in Plan
Vanishing Parallel to Lines receding in Plan to the Left
Vanishing Parallel to Lines receding to the Right
Hip of Roof Plan
Perspective
Gutter Line
Scale on P.P.2
Totals 40'-1"
Totals 21'-2"
G.L.
Bisector of 90°
Roof Plan
Scale ⅛"=1'
Slope A
Second Floor
Picture Plane
Constructed from the Picture Diagram
Great Circle
PERSPECTIVE.
INVERSE METHOD.
A Practical Example of drawing a Plan and an Elevation, to Scale, from an ordinary Photograph.

Figure 15

S.P., and the V.P. of the key hip line and the D.V.P. of horizontal bisectors will both lie in this vertical H.L. If the V.P. of the hip is found, we can find D.V.P. by drawing a vertical line through it to H.L., and where it cuts H.L. will be D.V.P.

To find the V.P. of the hip it is necessary to find the inclined vanishing horizon of the roof slope "A" in which it lies. The point where the hip line, extended, cuts this roof H.L. will be its V.P.

To find the inclined vanishing H.L. of the roof; two V.P.'s in the roof plane "A" will determine it. One V.P. is already found at $V.P._L$ for all horizontal lines, including those in the roof which recede to the left. The V.P. of one other line in the roof plane "A" is easily found by extending the line connecting the center of the ridge and the center of the lower edge of the roof until it cuts the vertical H.L. of planes parallel to the end wall of the house. This center roof line lies in a vertical plane which is parallel to the end wall of the house, and its V.P. must lie in the vertical horizon through $V.P._R$.

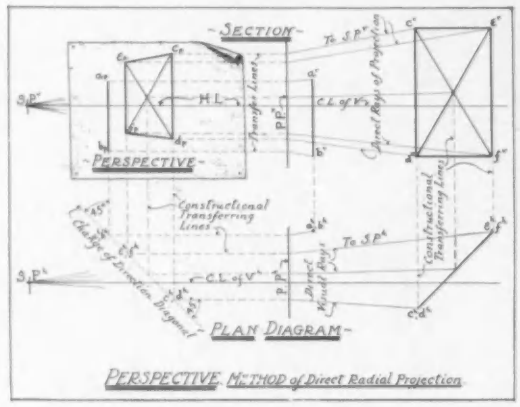


Figure 16

The rest of the process is simple and is obvious from the drawing, but a few points may be emphasized which are to be specially noted.

We call attention to the use of diagonals in finding centers of lines in perspective. The intersecting diagonals of the rectangle erected on the ridge and the diagonals of each wall of the house give perspective centers. Having fixed the working points (S.P., M.P.'s, D.V.P., and V.P.'s), we can assume a G.L. at any convenient height on which to construct a perspective plan from points in the picture vertically above or below it, and can then carry these perspective locations of points forward to the ground line by measure lines. The measures thus found on G.L. will be proportional measures, true to a scale, but the scale thus formed may not be one which is convenient to use. For example, in this problem the scale on G.L. (on the original drawing before reproduction) was a little greater than one-eighth inch to a foot.

If we know one dimension such as the total dimension of one wall, we can use the method shown in Fig. 14 for changing the "nondescript" G.L. scale to a definite scale used by an architect of (say) a quarter inch or an eighth inch to a foot, as was done in Fig. 15. The line of heights is always the same scale as that of the G.L., both being scale lines lying in P.P. In the problem (Fig. 15) the line of heights is the corner angle of the house. Where the perspectives of horizontal lines cut it will be the vertical dimensions at the same scale as the horizontal dimensions on G.L., so that these also must be changed to the definite eighth scale for measuring before a definite scale plan or elevation can be constructed.

Heights of chimneys, the ridge, etc., must be found to scale by a process exactly the reserve of that which would be used in making the perspectives of such features. Starting from a perspective point, we carry forward the point along some "path" vanishing line, zigzagging from one V.P. to the other if necessary, until the point reaches the P.P. in its proper L. of Hts. or G.L., where it can be measured at its time scale. The true angle of the roof slope "A" can be found from the construction of an elevation by points, but it can be found directly from the picture diagram and will serve as a check. The center line of the roof slope "A" makes the same angle with a horizontal plane that is made by a line parallel to it, drawn through S.P., and has the same V.P. on the vertical H.L. through V.P.R. If S.P. is revolved horizontally about V.P.R. as a pivot so that it is seen in section, its position will coincide with M.P.L., and the line connecting this point and the V.P. of the center line of roof slope "A" will be the true angle of the roof slope.

METHOD OF DIRECT RADICAL PROJECTION IN PLAN AND SECTION. All perspective phenomena and perspective drawing result from the fact that direct rays or lines of light enter the eye from points in the object. These rays, in order to form an image or "picture" (perspective projection), must cut some surface. In the case of ordinary vision this surface is spherical, the retina of the eye being the inside surface of a sphere receiving the image or perspective of projection. Everything we see in nature is seen in "spherical perspective." The practical difficulties of making a drawing in spherical perspective with a concave spherical P.P. and the S.P. at the center of the sphere are so great, and the distortion resulting from a straight, vertical P.P. is so slight, that the latter is nearly always assumed in ordinary problems.

The principles of perspective drawing are most easily understood by referring to the two diagrams used in solving a simple problem by the method of Direct Projection in Plan and Section as shown in Fig. 16. Here the S.P. is shown in elevation or section, and also in plan. The objects and the P.P. are also shown in the same way, projected upon a horizontal plane (in plan) and upon a vertical plane (in elevation or section). In each diagram, direct radial lines of projection are taken from points in the objects to S.P. Where these rays cut P.P. are points which form the perspective image or picture in plan and section. The perspective is made by combining these projections thus found in plan and section. This perspective or picture diagram shows the P.P. revolved around so as to be seen from the front instead of "end on" (section) or "from above" (plan). This perspective can be made on a separate sheet by ticking off the points on P.P. from the plan and section, or as in Fig. 16 on the same sheet by using "transfer" lines drawn perpendicular to the P.P. in both diagrams in order to preserve the same relative positions of the points on the face of P.P. in the picture that they have on P.P. in plan and section. To save space the plan and section diagrams are sometimes combined, but this may cause confusion.

Description of School Buildings

ILLUSTRATED IN THIS ISSUE

SKOKIE SCHOOL, WINNETKA, ILL. PLATE 53. This building was formerly called the Columbia School, its present name being derived from the Skokie marshes, a prominent feature of the landscape of the district in which it is located. Its plan is of the one-story neighborhood center type, with assembly hall and kindergarten, the stage being in the center and the class rooms along the sides. Only half the class rooms have as yet been built, the others, as well as the administrative department, being left for future addition. The building is of fireproof construction, except the roof. All rooms have exterior doors and windows within four feet of the ground. There is no basement or cellar. The floors are of concrete, the walls of brick and tile, and the ceilings of hard plaster on metal lath. The heating is by a combined direct and indirect system of steam heat and fan ventilation. All rooms have skylights, with control to eliminate glare from direct sunlight. The cost was 17½ cents per cubic foot. Allowing forty pupils to a room, this amounts to $176 for each pupil.

Kindergarten, Skokie School

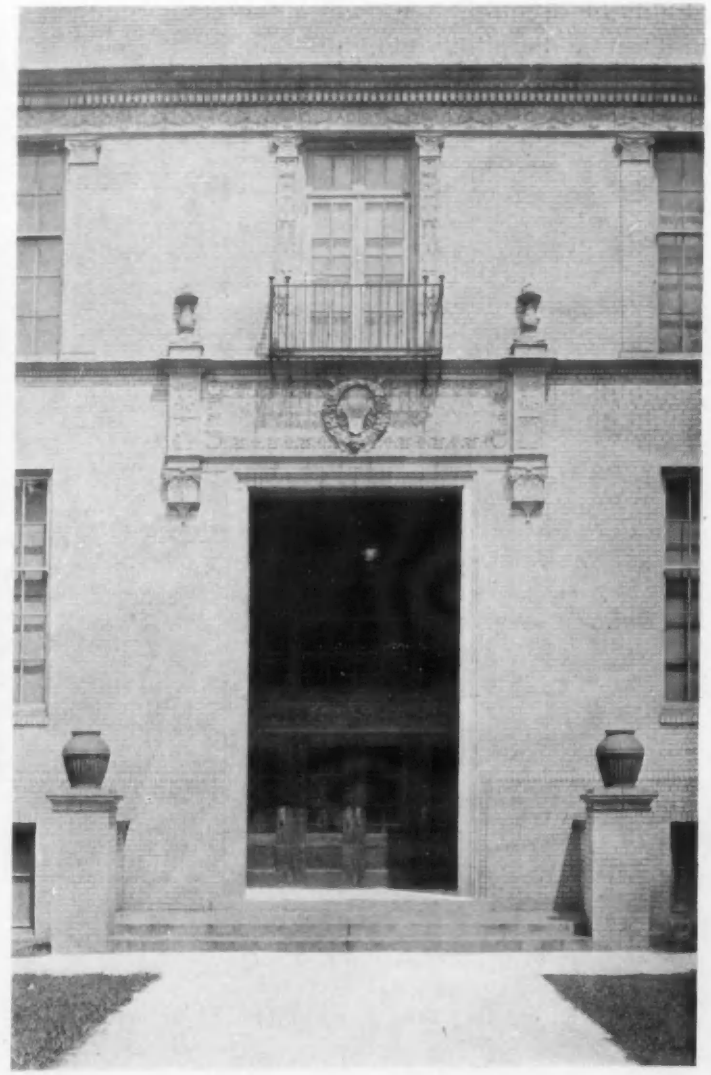
Assembly Hall, Skokie School, Winnetka, Ill.
Perkins, Fellows & Hamilton, Architects

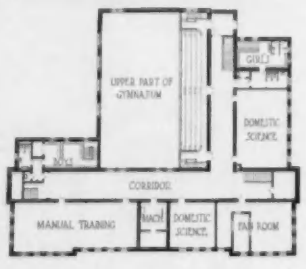
FISHER SCHOOL, NORTH WALPOLE, MASS. PLATE 54. A one-story building was adopted for this school as being the best and safest type, in view of its rural location and moderate size. The main floor is raised sufficiently to give a well lighted basement, containing work and play rooms, as well as the usual plumbing and heating installation. This is a lower elementary school, with four rooms for classes of forty pupils each. The walls are of brick above grade and concrete below, but wood joists have been used, so that the building cannot be classed as fireproof. The cost was $18,500, which gave a unit cost of 16¼ cents per cubic foot, or $114 per pupil.

MORRIS SCHOOL, ROCKVILLE CENTRE, N. Y. PLATES 55, 56. Rockville Centre is a rapidly growing community about twenty-five miles from New York City, populated largely by commuters. The school has therefore been built with the idea of future enlargement by the addition of wings at both ends and a gymnasium and auditorium in the rear. The walls where these additions are to be made are stuccoed on the structural terra-cotta blocks, the basement and quoins being of brick, while those walls that compose the completed part of the building are faced entirely with red brick. The combination of the two materials has been skilfully handled, producing a most pleasing effect. The exterior trim is cast cement. Windows are made up of steel factory sash, and all stairs and corridors are of reinforced concrete construction. The wardrobes have natural light and mechanical ventilation. The second floor plan is similar to the first, but with one additional class room in place of the kindergarten. The total cost of the building was only 14 cents per cubic foot.

GRADE SCHOOLHOUSE, NORTH EASTON, MASS. PLATE 57. This building was a gift to the town by the children of Frederick L. and Rebecca Ames and was first occupied in September, 1916. The foundations are of concrete, basement walls above grade of cast stone, exterior walls above basement of water struck brick, laid in English cross bond and backed with terra-cotta blocks. The cornice and trim are of wood and the roof of slate. The interior partitions are of terra cotta, but floor joists are of wood. Interior trim is hard pine. The staircases are fireproof and are enclosed by fireproof walls. Heating is by steam, with a gravity system. The cost of the building was 15 cents per cubic foot.

DEDHAM HIGH SCHOOL, DEDHAM, MASS. PLATE 60. This school is intended to accommodate about 600 pupils. It is situated on a plot of about eight acres, the building being 157 feet long and 84 feet deep, including the extension at the rear. The exterior finish is of water struck brick, with granite and terra-cotta trimmings. The basement contains a lunch room, a gymnasium 43 by 58 feet, locker rooms, etc. On the first floor are six class rooms, two recitation rooms, the principal's office, and an assembly hall 35 by 58 feet, with a seating capacity of 550, including the gallery above. On the second floor are two study halls, three recitation rooms, two class rooms, an





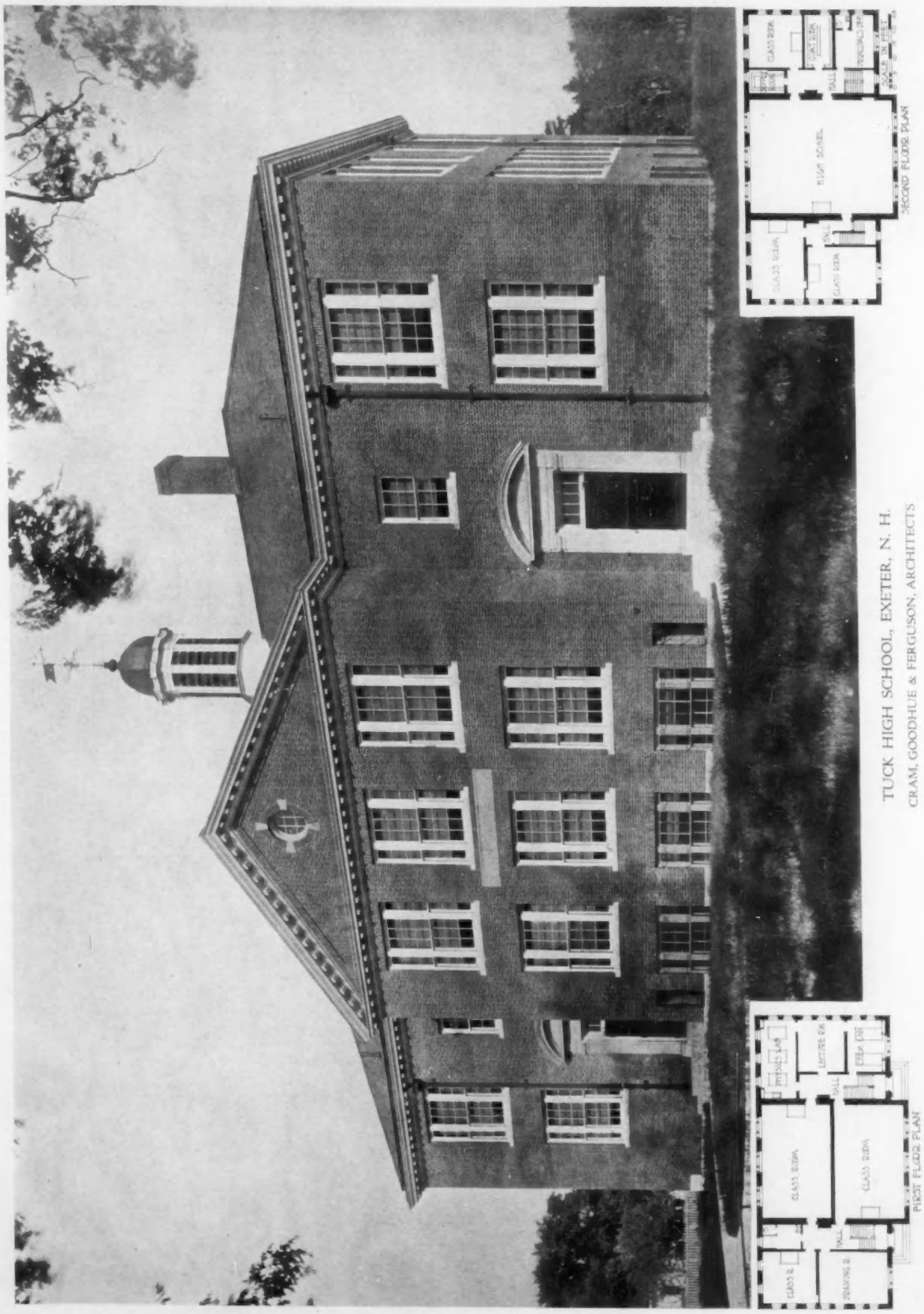
BASEMENT FLOOR PLAN

FIRST FLOOR PLAN

SECOND FLOOR PLAN

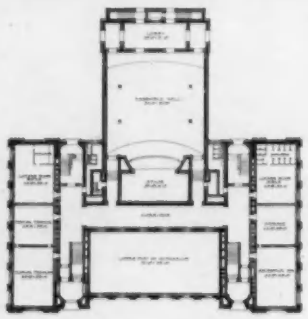
DETAIL OF MAIN ENTRANCE

EDGEWOOD HIGH SCHOOL, EDGEWOOD PARK, PA.
INGHAM & BOYD, ARCHITECTS

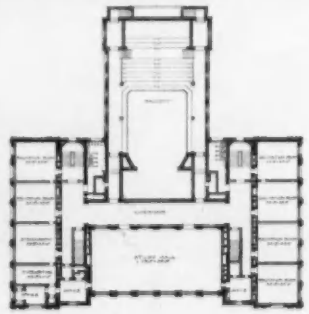


TUCK HIGH SCHOOL, EXETER, N. H.

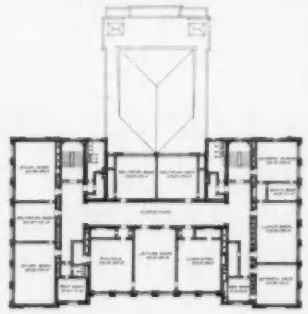
CRAM, GOODHUE & FERGUSON, ARCHITECTS



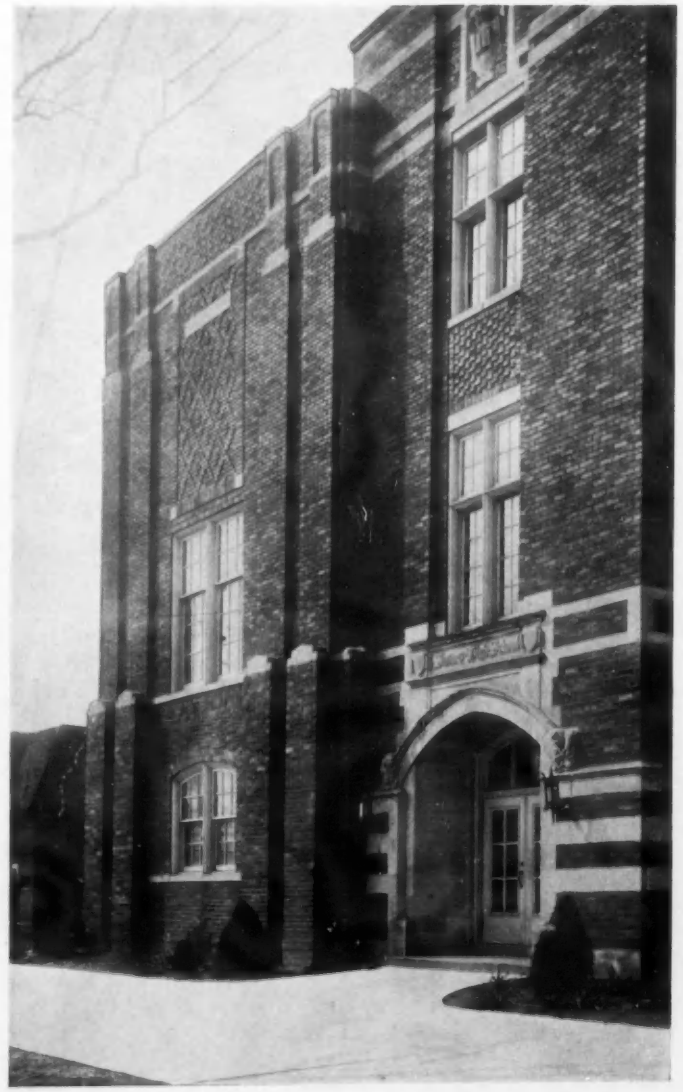
GROUND FLOOR PLAN



FIRST FLOOR PLAN



SECOND FLOOR PLAN



DETAIL OF ENTRANCE AND END PAVILION

SIDNEY HIGH SCHOOL, SIDNEY, OHIO

FRANK L. PACKARD, ARCHITECT; RALPH SNYDER AND E. F. BABBITT, ASSOCIATED

Lecture Room, High School of Commerce, Boston, Mass.
C. Howard Walker and Kilham & Hopkins, Associated Architects

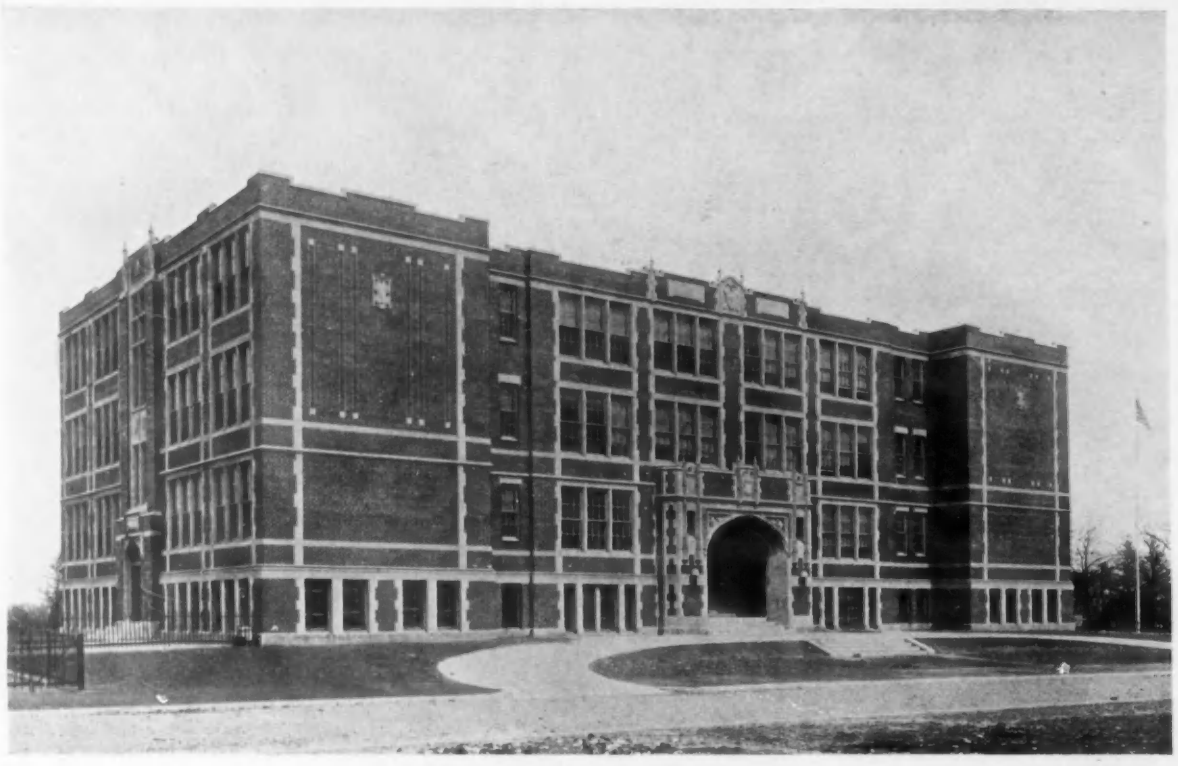
emergency room, and the entrance to the gallery of the auditorium. On the third floor are the physical and chemical laboratories, with lecture room and other accessories, a large and well equipped domestic science laboratory, sewing and drawing rooms, and rooms for bookkeeping, typewriting, and stenography. Each of the class rooms is of a size to accommodate 37 pupils, with light from one side only. The study halls will accommodate 144 each. The total cost of the building was about $125,000.

High School of Commerce, Boston, Mass. Plate 61. The outside of this building is constructed of gray brick with limestone trimmings. The design is in the English type. The building is 304 feet long by 140 feet deep, and its front is broken up into two wings and a central block. In the basement there is a large lunch room, equipped with counters with heating devices for food, etc., also large locker and shower rooms which connect with the gymnasium above. On the opposite side are the boiler and engine rooms. There are also nine class rooms in the rear of the building, which come above the ground, giving a lighting equal to any of the rooms above. The first floor is entered by the main central doorway, with a hall running through to a corridor parallel to the front. From this main hall the gymnasium opens on the right, and on the left the auditorium, which is arranged with a balcony and seats about 1,500. Directly opposite the main entrance hall are the offices of the head master and teachers. This floor also contains twelve class rooms and ample toilet facilities. The second floor consists of the upper portions of the auditorium and gymnasium, with a library directly over the main entrance hall. This floor contains fourteen class rooms. The upper floor contains laboratories and lecture rooms for both elementary and advanced chemistry, with demonstration rooms in connection with same. The commercial department is also on this floor, and is provided with a banking counter opening off the main corridor and into the advance commercial rooms. The laboratory equipment is most up-to-date in detail. All the work tables, etc., are made of oak, matching the general finish of the building. These tables are fully equipped with sinks, glass shelves, etc., and have gas and electric connections. On the walls in the large laboratory are hoods for special experiments. These are ventilated separately to the roof. The chemistry laboratory work tables are provided with separate lockers and two separate drawers above for each pupil in which to keep materials. The tops of these tables have an acid proof finish, with glass tops on the raised shelves above the sinks.

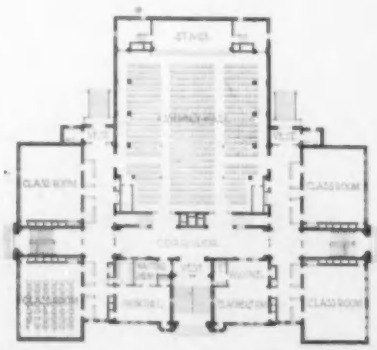
Northern High School, Detroit, Mich. Plates 62, 63. This is a building of considerable size, being planned to accommodate 1,200 pupils. A combined plenum and exhaust fan system is used for ventilation, the air being mechanically humidified and tempered, and the supply of air, as well as its temperature and humidity, being mechanically controlled. The walls are of rough surfaced brick, with terra-cotta trimmings and a tile roof. The corridor floors are of terrazzo, with plaster walls, while in the rooms hard maple floors are used. The interior trim is for the most part of oak.

Lafayette Bloom School, Cincinnati, Ohio. Plate 64. This school was erected in a congested district, a fact that has influenced the plan in several ways. The auditorium is of unusual size for a primary school, as there is no other public auditorium in the neighborhood. It has a seating capacity of about 450. In the north wing of the building are a series of special rooms, of a type usual in high schools, but not in elementary schools, including domestic science and art, as well as various workshops and manual training rooms. These were instituted for the benefit of children who must begin work at the earliest legal age, and have proved a great success. There are also very complete gymnasium facilities in the basement, while the second floor of the wings is used for

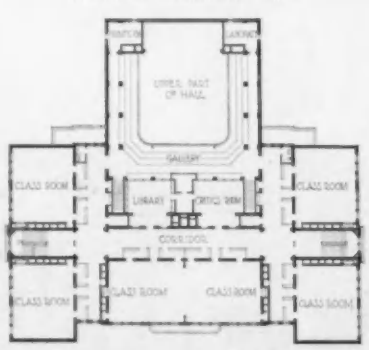
Chemistry Laboratory, High School of Commerce, Boston, Mass.
C. Howard Walker and Kilham & Hopkins, Associated Architects



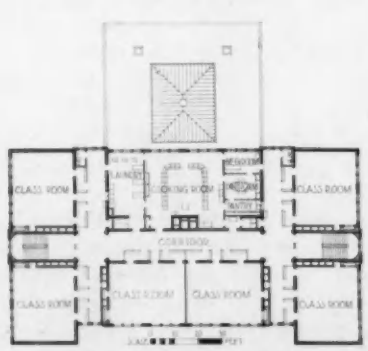
VIEWS OF ASSEMBLY HALL



FIRST FLOOR PLAN



SECOND FLOOR PLAN



THIRD FLOOR PLAN

BEAUFORT STREET GRAMMAR SCHOOL, PROVIDENCE, R. I.

MURPHY, HINDLE & WRIGHT, ARCHITECTS

open air play space. The cost of the building was 19 cents per cubic foot.

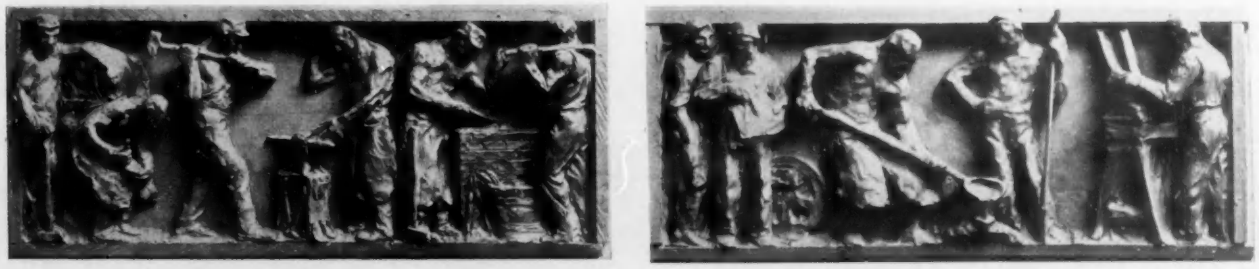
TECHNICAL HIGH SCHOOL, SALT LAKE CITY, UTAH. PLATE 65. This is one of a group of buildings known as the West Side High School, the total attendance at which is about 1,200. The building is of fireproof construction, the floors and roof being reinforced concrete and hollow tile, with wood floor surfaces in most of the rooms. The walls are of buff wire-cut brick, left visible inside and out. Steel factory sash are used in the windows, and all doors and frames are also of steel. Heating is from a central steam plant. The building contains a foundry, forge shop, machine shop, wood-working department, etc., and was built for a total of $90,000, or 17 cents per cubic foot, $25,000 additional being devoted to equipment.

Library, High School of Commerce, Boston, Mass.
C. Howard Walker and Kilham & Hopkins, Associated Architects

MIDDLETOWN TOWNSHIP HIGH SCHOOL, LEONARDO, N. J. PAGE 96. This building is of dark red brick, with cast stone trimmings. Its cost was $57,300, or 12¾ cents per cubic foot, including heating and ventilating. A notable feature is in the ventilation of the rooms, the air being exhausted through the wardrobes. This dries any damp clothes and ventilates the wardrobe thoroughly, at the same time removing odors very effectively. The arrangement of these wardrobes was illustrated in THE BRICKBVILDER for March, 1915.

EDGEWOOD HIGH SCHOOL, EDGEWOOD PARK, PA. PAGE 102. The High School at Edgewood Park, Pa., is located adjacent to a grade school building, with which it is connected by a covered and enclosed passage, so that the grade school pupils may use the gymnasium and auditorium of the high school building, the connection being made through the first floor main corridor on the left of the plan. It is intended to enlarge the building, when necessary, by an additional corridor and class rooms at the rear of the auditorium, leaving one side of the auditorium and gymnasium free, the lighting being maintained substantially as at present. The exterior walls are of mottled gray brick and terra cotta. The floors and roof are built fireproof, of reinforced concrete and hollow tile. The floors of corridors and locker rooms are of terrazzo, tile being used in toilet rooms and maple flooring elsewhere in the building, except in the chemical laboratory, where the floor is of asphalt. The interior trim is of oak, except on the ground floor, where pine is used. The heating and ventilating are by a combined motor driven supply and exhaust fan system, supplemented by direct radiation. The steam plant is in the adjoining grade school. The class rooms seat from 35 to 40 pupils each, a total of 310. The cost of the building was 17 cents per cubic foot.

THE SIDNEY HIGH SCHOOL, SIDNEY, OHIO. PAGE 104. This building has a frontage of 160 feet and a depth of 93 feet for the main block, the auditorium extending back 72 feet farther. The basement contains the heating plant and a gymnasium 35 by 72 feet, on the center of the main front, its upper part rising into the ground floor. On this floor are the auditorium, seating 800, manual training and recreation rooms, etc. On the first floor are eight class rooms, offices and rest rooms, and a large study room directly over the gymnasium and of the same size, seating 200. On the second floor are twelve class rooms, physical and chemical laboratories, lecture room, study, and the domestic science and art departments. The heating is by a warm air system. The exterior of the building is of rough brick, with Bedford stone trim. Glazed brick has been used on the walls of the gymnasium, corridors, toilets, etc. All wood trim is of oak. The floors of toilets and corridors are of tile and terrazzo, cement floors being used in some of the minor rooms. The auditorium is used not only for school purposes, but for various public gatherings as well, the city having no adequate auditorium facilities. The cost of the building was about $98,000, including the heating and ventilating system.



Bas-Reliefs, Technical High School, Salt Lake City, Utah
Cannon & Fetzer, Architects; Mahonri M. Young, Sculptor

EDITORIAL COMMENT AND NOTES FOR THE MONTH

ARCHITECTS of America have long felt a warm and friendly regard for the architectural profession of France. Many of our architects have been fortunate in receiving the training of the great Ecole, and countless others in our own universities and colleges have been inspired and encouraged in their student years by those well loved and talented French masters who have contributed so generously to the upbuilding of the American profession. It is therefore with a feeling of comradeship and loyalty to the ideals which we share with our brother architects of France and England that the architects of America view the entry of the United States into the world war.

We have regretted the unnecessary destruction of revered monuments which were not alone the architectural pride of the invaded countries, but of the whole world. Each new outrage directed against these buildings that were without any military advantage and had existed for centuries has caused us to stand awed at the obvious abandonment of all civilizing influences on the part of the enemy. We have now declared war against the Imperial German Government, and it is our hope that active participation by the United States will materially aid in bringing permanent peace to the war-stricken countries and the world in general.

In preparing to enter the conflict, the United States Government will need the resources of technically trained men and in this respect American architects have certain qualifications that should render them of special value to the government in time of war. Owing to the tremendous task of organizing British and French resources at the beginning of the war, those governments overlooked the value of utilizing the services of architects and many of their other technical men. When the help of these trained men was wanted to carry on important work, a serious thinning out of their ranks was found to have taken place because all available volunteers had been sent to the front. Only recently the British architects, after experiencing a complete curtailment of all building operations through government order, offered their services to the nation in a splendid patriotic spirit. In presenting suggestions for the use of their training, they acquainted the military authorities with the fact that many important duties of a military nature could be satisfactorily performed by architects, with the result that the British architects to-day are using their enforced leisure to the profit of the government.

The experience of the allied nations shows clearly that the trained man may be of far greater service to his country in a constructive capacity than on the firing line. Any architect moved by patriotism to serve his country should study his own qualifications carefully and then offer himself to that branch of the service where he thinks his abilities will be most productive of good.

The American Institute of Architects has already taken steps to coördinate the services of architects and has made its intention known to the government. In naming a central committee to investigate military matters so that a definite field of endeavor may be suggested for which special training adapts its members, it has demonstrated its desire to become an actual working unit in the era of preparedness upon which we have entered. This is constructive and patriotic action and deserves the commendation and support of every American architect. It places the architect in his true position of eagerness to serve at all times for the public good, and we hope that, in addition to producing tangible benefit to the government, it will aid in giving the general public a true and sympathetic conception of the architect's position which, unfortunately, has not been universal in the past.

U.S. GOVERNMENT WANTS SHIP DRAFTSMEN

AN urgent call for ship draftsmen has been issued by the government, because all the shipbuilding work undertaken at navy yards is being retarded by a shortage of men in the drafting rooms. The Civil Service Commission, in making the call, asks that all persons qualified for such work communicate with its offices throughout the country, regardless of their private interest.

Applicants will not be assembled for examination, but will be rated upon the elements of physical ability and education, training, and experience. Those found qualified will be offered employment at once.

WILLIAM ROTCH WARE

THE debt which the profession of architecture owes to William Rotch Ware is something which is best appreciated by those who knew him from the very beginning of his connection with *The American Architect*. For thirty-one years he was the editor-in-chief, giving his time, his thought, and often his money in the most generous manner and with a loftiness of aim and a singleness of purpose which the profession can never sufficiently recognize. When he began his career, architecture was a little less professional than the occupation of the house carpenter. When he retired from editorship, the architectural profession had grown to be one of the foremost in importance in the development of the country. The Boston Society of Architects, of which he was one of the original members, by this motion expresses its appreciation of the services he has rendered so freely to the cause of good architectural and public service—a service which involved a degree of self-sacrifice few are willing to accept, but which was always offered for the good of his generation in unstinting measure. He leaves a record of which the Society, the profession, and his friends and family may well be proud, and in extending to his family its appreciative sympathy the Boston Society of Architects honors the man who has helped to make the Society possible and to give it a place in the community.